—THE—

Therapeutic Gazette.

Whole Series, Vol. XIX. | DETROIT, MICH., PHILADELPHIA, PA., | April 15, 1895. | Third Series, Vol. XI. No. 4.

CONTENTS.

Original Communications.

PAGE

A Case of Spina Bifida cured by Excision of Sac. By James K. Young, M.D. ... 217
The Administration of the Anæsthetics practically considered. By Frederic M. Strouse, M.D. ... 219
Losophan in Dermatology. By J. Abbott Cantrell, M.D. ... 221
Some Points concerning the Treatment of Pneumonia. By H. A. Hare, M.D. 222
Diphtheria: Etiology, Pathology, Diagnosis, and Treatment, especially Serum Therapy. By D. Braden Kyle, M.D. 225
The Protective Substances of the Body and Antitoxic Therapeutics. By Karl Schwickerath, A.M., Ph.D. ... 231

Leading Articles.

The Treatment of Diarrhœa ... 237
Is Etherization by the Rectum Permissible? ... 238
The Status of Ether in Germany ... 239
A New Journal ... 240

Reports on Therapeutic Progress.

Treatment of Sprained Ankle ... 236
Eleven Vital Points concerning Phthisis. What Cases to send to Colorado ... 240
Treatment of Pulmonary Consumption ... 241
How long shall Phthisical Patients remain in Colorado? ... 245
Treatment of Acute Laryngeal Stenosis 245
Phthisis ... 246
Insanity produced by the Abuse of Ganga (Indian Hemp) ... 247
What Cases of Phthisis are cured by Colorado Climate? Is Permanent Residence necessary? ... 248
The Effect of the Local Application of Guaiacol in the Reduction of the Temperature in Typhoid Fever ... 249
Some New Drugs ... 249
Furunculosis of the External Auditory Canal ... 249
Trional ... 250
Treatment of True Diphtheria ... 251
Treatment of Lupus ... 253
Bloodletting in Over-Distention of the Right Heart ... 253
Tizzoni's Antitoxin in Tetanus ... 255
A Death from A. C. E. Mixture ... 256
The Antitoxin Treatment of Diphtheria 256
Surgical Treatment of Diseases of the Stomach ... 257
The Newer Antipyretics: Acetanilide and Phenacetin: Their Drawbacks ... 259
"Borism," or the Toxic Effects of Borax 261
"Fat Milk" Infant's Food ... 261
Treatment of Tuberculous Peritonitis ... 262
Local Treatment of Faucial Diphtheria ... 262
Intrauterine Medication ... 262
On the Use of Antipyrin in Large Doses 263
Thrombosis of the Superior Mesenteric Vein ... 264
Treatment of Piles ... 264
Treatment of Urethral Chancroids ... 265
The Treatment of Bleeding from the Nose ... 266
Treatment of Tuberculosis with Yeast Nuclein ... 268
After-Effects of Antitoxin ... 268
Hemorrhage following Tonsillotomy ... 269
The Treatment of Furunculosis by Colchicum ... 269
Simple Treatment of Ganglion ... 269
Surgical Treatment of Primary Tuberculosis of the Genito-Urinary Organs ... 269
Septicæmia following Confinement or Miscarriage ... 270
Prescriptions ... 270
Improved Method of deodorizing and cleansing Catheters ... 271
Surgical Treatment of Injuries of the Head ... 271
The Treatment of Frost-Bite ... 271
Surgical Treatment of Hydatid Tumors 272
Post-Nasal Adenoids ... 272
Treatment of Penetrating Wounds of the Chest ... 274
Removal of the Uterine Appendages in the Treatment of Uterine Myoma ... 274
Surgical Treatment of Graves's Disease 275
Prostatic Abscesses ... 276
Treatment of Leucorrhœa ... 276
Stab Wound of the Stomach ... 276
The Curability of Cancer when the Lymph-Nodes are involved ... 276
Reduction of Dislocation of a Dorsal Vertebra ... 277
A Case of Perforated Gastric Ulcer ... 278
Epithelioma of the Penis ... 278
Treatment of Buboes by Injections of Iodoform and Vaseline ... 278
Vaginal Hysterectomy as done in France 279
Surgical Treatment of Vaginismus ... 282
Abdominal Extirpation of Uterine Fibromata without Removal of the Uterus ... 282
Vulvar Pruritus ... 282
Blennorrhagic Vaginitis ... 282
Treatment for Puerperal Endometritis ... 282
Massage of the Uterus ... 283

Reviews ... 283

Correspondence.

London Letter ... 286
Whooping-Cough ... 288

Original Communications.

A CASE OF SPINA BIFIDA CURED BY EXCISION OF SAC.

REPORTED TO ORTHOPÆDIC SECTION, COLLEGE OF PHYSICIANS, JANUARY 18, 1895.

BY JAMES K. YOUNG, M.D., PHILADELPHIA, PA.,

Instructor in Orthopædic Surgery, University of Pennsylvania; Attending Surgeon, Orthopædic Department, University Hospital.

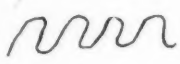
THE following case illustrates the successful cure of spina bifida by excision of the sac, under strict aseptic precautions. For the privilege of reporting the case, and for the opportunity to study and assist in the operation, I am indebted to Dr. De Forest Willard, in whose private practice it occurred.

History of Case.—M. L., male, aged one year; four other children; no deformity; mother fell down-stairs when six months' pregnant.

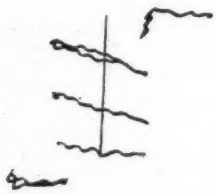
Examination.—Opposite the sacrum to the left of the median line is a large movable tumor, which can be moved to the left more easily than to the right, the restraining force being in the median line; no distinct pedicle. Pressure does *not* produce pain nor convulsions, but tumor diminishes in size. Tumor does not enlarge during crying. Child has

never had convulsions. Tumor firm, covered with normal, healthy, movable skin. Tumor lies rather in buttock tissues than over sacrum. (Fig. 1.)

Operation.—Incision over tumor; subcutaneous tissues quarter of an inch thick with fat; sac dissected out. Pedicle short, leading to opening through deficient lamina, admitting small finger. Pedicle was ligated by *zigzag*



suture, cut off short, and the stump edges secured by *uninterrupted* suture. Only a few



drops of cerebro-spinal fluid were lost through a small nick, which was quickly closed by suture. The tumor was the size of a goose's egg. The technique throughout was of the *most strict* aseptic variety. The recovery was prompt and uneventful.

This case illustrates what may be accomplished in selected cases of spina bifida by excision of the sac under strict aseptic precautions, and I attribute the success in this particular case to,—1, the selection of the case; 2, the technique of the operation; 3, the perfect asepsis.

1. The Case.—The tumor in this case occupied the most common seat,—the lumbo-sacral,—and was of the type of meningocele, or sac without nervous elements. Virchow gave the following division: 1, hydro-myelocele (external); 2, hydro-rachis-interne (internal); 3, meningocele pure (without nervous elements); and most systematic writers have modified this in different ways. The most convenient division for the surgeon is probably into,—1, meningocele; 2, myelocele; 3, meningo-myelocele.

Most observers since Cruveilhier have attributed the affection to incomplete ossification of the laminæ and spinous processes, these parts being usually deficient, and it being very rare for the hernia to protrude within intervertebral spaces. A rare instance of absence of (body) anterior part of vertebra is recorded* of an autopsy in a young woman of twenty-five years, and such cases have in rare instances been mistaken by gynæcologists for pelvic cysts.

This case was in marked contrast to another which came under observation about the same time, and to which brief allusion may be made, because it represents the type of meningo-myelocele in which the operation of excision is not a satisfactory operation, and in which, in my opinion, operation is not warranted unless there is immediate danger of rupture of the sac.

M. K., aged four years, born in Pennsylvania, of Hungarian parentage; large corrugated sessile tumor over lower lumbar region; complete paraplegia from birth; paralysis of bladder and rectum; large sloughing ulcer of buttocks and perineum. The size, situation, and character of the tumor are well shown in the illustration. The intelligence was good. (Fig. 2.)

2. The Operation.—Excision of the sac in suitable cases is an operation which should be performed more frequently. The introduction of aseptic surgery has rendered this operation less dangerous, and in selected cases it offers better prospects of a cure than injection. In this connection it is interesting to observe that Dr. Valentine Mott (in 1830), sixty-five years ago, cured two children in this manner. Gross† says the incision was elliptical, and the wound, closed by interrupted sutures, healed by first intention. The operation by injection of the sac appears to have so captivated the minds of surgeons that excision of the sac has been neglected in suitable cases.

3. Asepsis.—The asepsis throughout the mechanical part of the operation can be accomplished more readily than the asepsis of the wound subsequently. In addition to the various methods of occluding the wound by rubber dam or other water-proof material attached to the skin below the wound, the close attention of the nurse for the first twenty-four to forty-eight hours may prevent any contamination of the wound by urine or fæces.

In conclusion, while it is difficult, if not impossible, in many cases to determine positively before operation the character of the contents of the sac, yet, if the tumor is elastic, movable, not attached to the skin, and there is an absence of nerve symptoms,—paraplegia, paralysis of bladder or rectum, and pressure symptoms,—it may be considered a meningocele and a favorable case for excision of the sac.

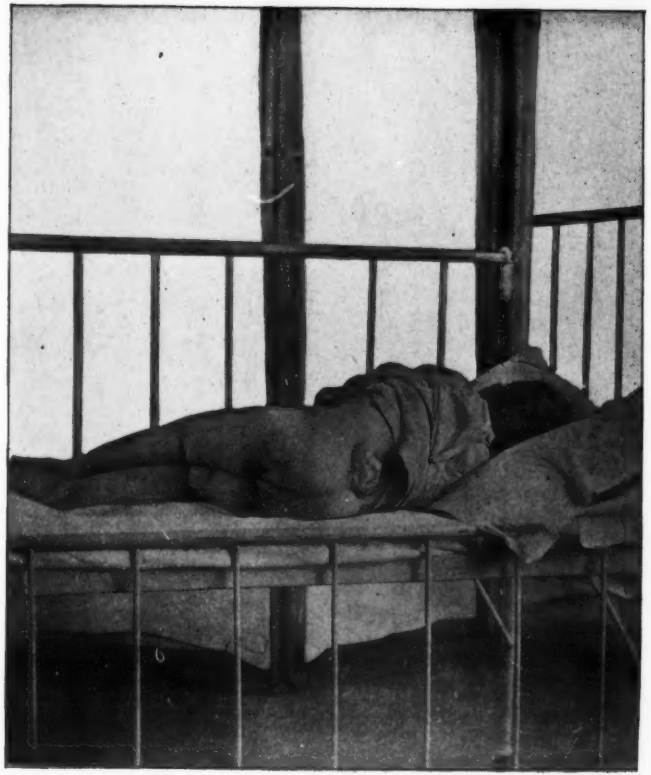
* Saint-Germain, "Chirurg. Orthopæd.," p. 250.

† "Memoirs of Dr. Mott," p. 48.

NLM

FIG. 1.

FIG. 2.



THE ADMINISTRATION OF THE ANÆSTHETICS PRACTICALLY CONSIDERED.

By Frederic M. Strouse, M.D., Philadelphia, Pa.

In a contribution to the study of the anæsthetics written three years ago the author regretfully remarked that it was still customary for the student or recent graduate, without special training, to be assigned the position of anæsthetist in operations in private practice. Apparently there has been no startling improvement in the past three years. Not often are qualifications demanded, and one who administers the anæsthetic is frequently seen to act as general utility man also.

We know it is not an infrequent occurrence for the surgeon to make repeated inquiries respecting the patient's condition and to offer numerous suggestions to the anæsthetist, and we think this is usually due to a lack of confidence in the latter's ability. It is really unfortunate that so many men consider it beneath their dignity to fill this position. At operations it is amusing at times to notice how distressed we are until some one is selected. The task is called a disagreeable or obnoxious one. Any one can "give the ether," but skill is necessary to handle a tenaculum or sponge. Disastrous results have been barely avoided many a time, but the impression upon our minds has not been lasting, as a rule, and we have still to become convinced of the necessity of having this position filled by one who has given the subject more than ordinary attention.

When this subject receives the attention it deserves in the schools, and the student has practical as well as theoretical instructions, the administration of the anæsthetics will, in time, command respectful consideration.

The following practical points are, in the writer's estimation, after having administered the anæsthetics nearly twelve hundred times and principally in private practice, the most noteworthy.

It is taken for granted that the physiological action of the various anæsthetics and the rules governing their employment in disease are understood.

To the careful surgeon it is gratifying to see the anæsthetist enter upon his work fully equipped with the necessary apparatus for all emergencies.

A case containing the following articles is considered by the writer indispensable: Allis's ether inhaler and ether bottle (graduated), Esmarch's chloroform inhaler and chloroform bottle (graduated), hypodermic syringe and tablets of morphine, morphine and atropine, atropine, strychnine, digitalin, and nitroglycerin, whiskey and aqua ammonia F., mouth-gag, throat sponge-holder and small sponges, catheter, pocket-case, and tracheotomy tubes. By many the battery is considered an additional safeguard, although the writer has found little or no use for it; if it is a valuable accessory, it should be at hand upon all occasions, for the unexpected is ever liable to occur.

A transfusion apparatus may be among the emergency instruments when, from the character of the operation and the condition of the patient, it is deemed prudent.

The hypodermic syringe should be perfectly clean and in good working order, and the catheter likewise thoroughly aseptic.

When time permits, the attending physician should never fail to have the urine analyzed.

The following history, when obtainable, is always appreciated by the anæsthetist:

The age, physical condition, including organic or functional trouble, temperament; if addicted to alcoholic excess; has an anæsthetic been previously administered? if so, which of them, and its effect at the time.

Food must be abstained from for several hours.

Whiskey may be given at short intervals prior to operating, and peptonized enemata also when the condition of the patient requires it.

By speaking encouragingly and assuring the patient that the anæsthetic may be inhaled with perfect safety, confidence is often promptly obtained. It is not considered wise to inform the patient that there is any danger to be anticipated from its administration. The family or friends are to be apprised if, owing to serious organic disease, there may be additional risk associated with its use.

The heart and lungs are examined, the arteries for atheroma, the cornea for senile arc, the artificial teeth removed and the fauces inspected, the clothing loosely and comfortably arranged, and the head placed nearly or quite on a level with the body; and, to readily notice the respiratory movements, it is best to have little covering on chest and abdomen, but always sufficient for protection.

The anæsthetic preferred by the surgeon is to be employed, provided there is no contraindication; when such exists, the administrator's judgment must be respected, otherwise the surgeon must assume the responsibility.

One of the finest accomplishments is the knowledge how to properly handle the patient.

Patience and gentleness are the noteworthy requirements, and with their aid one is promptly and safely brought to the stage of unconsciousness, a decided contrast to the rough handling of a frightened, struggling patient, usually the result of "pushing" the anæsthetic, most decidedly an inexcusable procedure, if not an uncivilized one.

Ether, the safer anæsthetic, is to be employed when it is but a matter of choice.

The patient is asked to use his best effort to refrain from interfering. He is permitted to breathe a few times through the dry inhaler; then about a teaspoonful of ether is poured upon it, holding it at a distance from the face, and, as the inhaler is gradually brought close to the face, ether is added in small quantities. If the patient requests it, the inhaler is removed for a breath of air. In a short time the inhaler may be kept permanently in position, and the patient then responds promptly to a request to "breathe deeply" and "expire forcibly." By this method it is the rule for one to pass uninterruptedly through the stages of anæsthesia without struggling.

The nervous or hysterical patient, or one exhausted from chronic invalidism, is the seemingly unmanageable one, and it is here that gentleness and tact demonstrate their superiority.

However, at times are found those that are positively uncontrollable; some may have taken ether the usual way, and fear a repetition of the same methods. It is best then to place ether and inhaler temporarily aside and use chloroform until the patient is unconscious. When the exciting stages are encountered and restraint becomes necessary, pressure should not be applied to the chest; it is simply required to hold the shoulders and lower extremities.

To the writer the best results are obtained by keeping the inhaler applied to the face throughout, if possible, and using the ether in drops, thereby maintaining a uniform condition. If the inhaler is placed aside from time to time, the patient is liable to become semiconscious and embarrass the operator. With insensitiveness of the cornea, anæsthesia is most generally obtained.

When disturbances present themselves they are usually respiratory. Regular abdominal movements assure us that the respiration is satisfactory, but irregular abdominal movements denote irregular diaphragmatic action.

The hiccough-like, the stertorous, and the wheezing breathing are all signs that the danger line has been reached, and in any of these conditions the face may assume a purplish hue, denoting deficient aeration.

The slightest irregularity of respiration demands prompt action. Ether is, first of all, dispensed with, and that may suffice to bring about the natural order of things. When active measures become necessary, they are, in regular order, pressing the jaw forward from behind the angles, separating the jaws and rhythmical traction on the tongue, dilatation of sphincter ani, artificial respiration, respiratory stimulants, and, finally, the battery.

Owing to more or less excitement at the commencement, the pulse-rate is usually abnormally rapid, and the normal heart action is only obtained when anæsthesia is more or less advanced. While the temporal artery is usually selected to guide this function, the radial pulse may now and then be taken to note the circulation in the extremities.

Recent laboratory and clinical studies have proved that chloroform kills most frequently by failure of the respiration; nevertheless, we know that the heart is often easily overcome, and it behooves us to be ever watchful of its behavior.

To place chloroform in the hands of a novice is to assume an additional risk, for, being the more agreeable anæsthetic, it is readily inhaled, narcosis follows in a comparatively short time, and, with the least carelessness in its administration, toxic results are promptly manifest.

Chloroform should never be forcibly administered, for with resistance there are always exaggerated respiratory movements, and there may be rapid absorption of a large quantity of chloroform, and alarming symptoms, with no previous warning.

It is essential that the head be placed low during anæsthesia, and especially when chloroform is used, for here we have cerebral anæmia as a physiological result.

With the bottle, whereby chloroform may be used drop by drop, the inhaler may be retained in position during the entire operation.

The same unpleasant manifestations are liable to occur as with ether, and are usually more prompt in presenting themselves.

Ethyl bromide, for no really good reason, does not seem to grow in popularity. Its field of usefulness is limited to operations in which only a brief period of unconsciousness is required.

It is often a difficult and dangerous matter to commence anæsthesia in a patient addicted to alcoholic excess, and it is here that bromide of ethyl proves its value; a drachm or two on the inhaler and the patient promptly

relaxes, after which it is best to prolong the narcosis with chloroform.

The A. E. C. mixture is about as unpopular as it is unscientific, and is considered by many men of experience an unsafe combination.

Vomiting occurs as frequently with chloroform as with ether, and post-operative vomiting usually after ether. Morphine is sometimes administered to prevent vomiting, but seems to have little or no power in that respect, and is likely to induce vomiting, post-operative.

The surgeon is to be promptly informed of an approaching attack of vomiting, for, owing to the straining effort, much harm may be done at times if the field of operation is not protected.

Mucus can usually be removed from the pharynx with a small sponge attached to a holder. A large quantity of ropy mucus may embarrass respiration, and, if necessary, vomiting may be induced by tickling the fauces or permitting the patient to partially recover.

Reflexes of the perineum, anus, rectum, testicles, peritoneum, and ovaries are maintained to the last, and one must be thoroughly anæsthetized before operations upon these parts can be satisfactorily performed.

The pupil should be contracted and respond to light. Marked dilatation following contraction is a danger signal and a warning to discontinue the anæsthetic.

The frequent tapping of the cornea is uncalled for. It is sufficient to elevate the upper lid, when, with returning reflex, there will be an unconscious effort to close the lids.

Shock—of rare occurrence during the progress of most ordinary operations—is prone to occur with more or less severity in debilitated subjects, and especially when the operation is interabdominal and necessitating frequent handling of the viscera.

Post-operative shock may be due to the reckless use of the anæsthetic.

At the termination of all operations, whether they be trivial or serious, the anæsthetist must be fully assured of the satisfactory condition of the patient before leaving the room.

To hasten anæsthesia, hypodermic injections of morphine are often given; it may do so, but as frequently prolongs the narcosis unnecessarily.

Many of the disagreeable symptoms associated with ether anæsthesia may be obviated if we dispense with the towel as an inhaler. The patient must have plenty of air with the ether in order to take it pleasantly and safely, and with the cone-shaped towel there is no such possibility.

The preference for a particular ether inhaler is usually the result of one's experience, and the writer has used the Allis with marked satisfaction, and finds that there is very little waste of ether with its use.

If one wishes to determine with absolute accuracy the amount of ether inhaled, the Clover apparatus is probably the best one.

It is well to mention that ether is not to be handled in close proximity to artificial light, and, with the inhaler, should be removed before using the actual cautery in the neighborhood of the face.

It is safest to use only Squibb's preparations.

The writer makes little claim to originality; his object is mainly a review of the valuable points of this ever-important subject.

2220 North Broad Street.

LOSOPHAN IN DERMATOLOGY.

By J. Abbott Cantrell, M.D.,
Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine; Dermatologist to the Philadelphia Hospital and to the Southern Dispensary, Philadelphia.

As far back as one year ago a quantity of losophan was placed in my hands by my friend, Dr. Hobart A. Hare, editor of the Gazette, for experimentation in my dermatological practice.

The drug is what is termed a triiodocresol, and is produced by the action of iodine upon m-oxytoluic acid while in the presence of an alkali. It is soluble in alcohol, ether, benzol, and chloroform. Fixed oils heated to 60° C. will readily dissolve it. It contains about eighty per cent. of pure iodine.

Following the request, I have concluded some experiments in this direction, and while I cannot verify all the statements that have been brought forward for the drug, I am obliged to state that it did act beneficially at least in only a few cases.

Saalfeld, of Berlin, experimented freely with this remedy, and came to the conclusion that it acted well in most of his cases, such as mycosis, pityriasis, eczema, prurigo, sycosis, epizoon, and in pediculosis.

My experience is as follows:

In prescribing for the cases I used the following formulæ:

In ointments of from two to five per cent. with petrolati; it was also used as a dusting powder, in strengths of from one to fifteen per cent., with starch. In solution I advised it to be applied in strengths varying from one to five per cent. with alcohol diluted with water.

The number of cases in which I tried this drug were in round calculation one hundred and eleven, and were made up as follows: forty-three of eczema of all varieties, but it gave the desired results in only four cases, the others remaining about the same, there being not the slightest semblance of benefit.

In the animal parasitic affections it was used in twenty-three cases of scabies, but it did not show any amelioration of the condition whatever.

In pediculosis vestimentorum, in which the treatment was applied to five cases, I was obliged to abandon it after three weeks' treatment, not having made any change in the trouble at all.

It was given an extended trial, in the vegetable parasitic condition, such as the ringworm species; it was used in sixteen cases, out of which there were four of tinea versicolor, three of tinea tonsurans, and six of tinea favosa which did not respond to the treatment at all. In tinea sycosis, of which I treated three cases during a period of two and a half months, I found that it cured one case only, and in the others it gave not even relief.

Even in impetigo contagiosa—the mildest of the so-called vegetable parasitic affections—it was tried in eight cases without avail.

Alopecia areata (two cases), dermatitis venenata (two cases), furuncle (two cases), and seborrhœa (two cases) gave the same undesirable results as in the foregoing conditions.

In acne it was my pleasure to use this remedy in eight cases, but the drug did not give any positive effect except in two cases, and in these the trouble was not benefited much.

Summary.

1. It proved entirely inefficacious in almost every disease of the skin.

2. Tinea sycosis was cured in one instance, but after two months' treatment.

3. It gave a slight idea that it may be beneficial in acne.

4. I think it a waste of time for any one to make use of it in treating diseases of the skin.

SOME POINTS CONCERNING THE TREATMENT OF PNEUMONIA.

By H. A. Hare, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

THE gradual progress of bacteriological investigation has finally given us positive affirmative evidence that pneumonia of the croupous type is an infectious disease, not depending upon the coccus of Friedländer, as was thought at one time, but produced by the micro-organism now known as the *Micrococcus lanceolatus*. The profession has recognized for years that the early stages of croupous pneumonia were identical with the early stages of every inflammatory process, whether accompanied by a croupous exudate or not,—namely, the crowding of the minute blood-vessels with corpuscles, the development of diapedesis, and the rapid pouring out into the tissues of what is collectively called an inflammatory exudate. Such a process being present, it, of course, means that the prominent pathological condition must be local hyperæmia or congestion, and this congestion is not venous, but arterial and capillary. Those who have studied the recent history of this disease have no doubt been interested to note not only that the micrococcus named is daily being proved its cause, but also that the inflammatory process primarily is practically identical with all inflammatory processes of an acute character. It behooves us, in the presence of such important evidence, to look over our therapeutic methods for the purpose of discovering erroneous ideas, and we should ask ourselves the question whether the views held ten years ago as to the therapy of pneumonia are tenable to-day.

The first point which must be decided before the discussion goes any further is whether it is possible to jugulate or abort an attack of acute croupous pneumonia, because, if it is possible, it is of the utmost importance for us to resort to satisfactory measures of jugulation in every case which is seen early enough. An important point to be remembered in making estimations of the value of any form of treatment of infectious disease is that of the dose of infection and the resistance of the individual. Every infectious disease manifests itself in so virulent a manner in some cases that, do what we will, the patient must succumb. We can only judge of the value of measures which aid the patient who is so infected, so to speak, that he has a fighting chance, particularly if we give him rational aid. In other words, some cases are so eminently infectious, in the sense that blood-poisoning is infectious, that the pulmonary symptoms are not important, and probably, if we are perfectly honest, we must admit that some cases die without our doing much to help them. Although such a statement is apparently a confession of weakness, it is in reality only a recognition that in some instances the patient must die and that we are not infallible. The question in

the treatment of any disease capable of causing death is not whether we can cure all cases, but whether we can save or preserve a percentage which would without our efforts go to the bad. If we look through the most recent literature of this subject, we find opinions expressed which indicate that the writers are hedging or have no views to offer, while others admit or assert very positively that pneumonia may be aborted. Thus, we find that Osler believes very firmly that "pneumonia is a self-limited disease and runs its course uninfluenced in any way by medicine. It can neither be aborted nor cut short by any known means at our command." He believes, however, that it may abort itself as early as the fifth day. Bristowe believes that in very mild cases all the symptoms may subside in three days, or even in two days. In other words, it is evident that pneumonia is not a disease which runs a definite course, as does typhoid fever. For this reason we should be very careful to avoid crediting any remedial measure followed by great improvement with that improvement until frequent and precise repetition of the phenomena of aborting is seen again and again. On the other hand, the very fact that croupous pneumonia often runs so abortive a course proves that it has not in every case a tenacious hold upon the classic crisis on the eighth or ninth day, and if it is possible for the disease to wear itself out in a brief space of time, why can we not aid it in coming to an early close? Just at this point we reach a part of the subject where only the most careful thought will avoid fallacious conclusions, because the evidence before us is so contradictory. If pneumonia is a disease which is bound to run its course, as Osler states, then not only can we do nothing to abort it, but it can never stop itself short of its classic crisis; and as a disease which runs its course must pass through all its phases, then we must either admit that these phases are passed through in forty-eight hours or else that it does not run a given course, but may develop so far and no farther, being never completed. Personally, I believe that it does not always run a full course, and that those cases, such as Bristowe mentions, which get well after the second day are instances where, from one reason or another, the infecting micro-organism is incapable of carrying out its ordinary processes. Believing this, which is based on the best of bacteriological investigation, we should be able to so modify the process by treatment as to partly abort the illness, provided we see the patient before the micro-organism has accomplished its purpose and produced such pathological changes in the pulmonary tissues that resolution and absorption processes must take place. After these changes have taken place, the system can only clear up the wreck as we can clear up the result of a gunpowder explosion, which explosion, however, if properly guided at first, may produce only useful results. The best record of the results of bacteriological study, so far as the period of activity of the organism is concerned, can be found in Welch's able paper upon the *Micrococcus lanceolatus*. In this paper he shows that of pathogenic organisms this micrococcus is one of the least tenacious of life, and that its loss of virulence is frequent and apt to occur rapidly.

The micro-organism under discussion produces, as we have shown, a characteristic pulmonary hyperæmia in the area involved, and there is associated with this influence a general infectious process which, even from the start, directly or indirectly, produces the general systemic disturbance characteristic of the onset of pneumonia. Having gone so far in our study, we are faced by the question whether there is any drug which can so modify congestive processes as to prevent intense congestion and consequent exudate. I think we have two such drugs,—namely, quinine and veratrum viride. Although I am not wedded to the latter against aconite, I am confident that the aconite is better for children and veratrum viride for adults. Aside from the very generally accepted fact by practitioners of medicine that quinine in full medicinal dose exercises marked antiphlogistic power, there is very good experimental proof of its possessing such power, and when we remember that it also exercises a very useful action in the face of all infectious processes, its value is the more evident. Finally, the fact that quinine supports the system is not only widely believed to be a fact, but it is well known that a man taking this drug can support a greater amount of labor than one who does not. The experimental evidence which I wish to adduce, as showing the value of quinine in pneumonia or the early stages of any acute inflammation, is that afforded by the researches of Binz, Cutter, and myself. The method pursued in all my studies was as follows: A frog was placed on its back and the mesentery spread over a suitably arranged cover-glass, so that the circulation in the capillaries could be readily studied. After the rapidity of diapedesis had been noted, the mesentery was injured by a hot needle-point and the diapedesis again studied under the conditions of inflammation. Similarly, studies were made when quinine was

used, and in all cases it was found that quinine arrested diapedesis or the extrusion of white cells into the surrounding tissues. In addition to this, I noted a marked contraction of the capillaries in the inflamed area, which, of course, decreased the hyperæmia. To express it differently, the typical picture of early inflammatory processes was set aside or, at least, modified. It has even been claimed by Binz that full doses of quinine destroy the amœboid movement of the corpuscles in the blood-vessels.

The second measure for overcoming the pathological process set up by the micro-organisms is by the use of the circulatory sedatives which I have named. It should be distinctly understood that this action of veratrum viride or aconite is only indirect so far as the pulmonary vessels are concerned, since the vaso-motor apparatus found elsewhere in the body is practically absent in the lungs. It is the influence over the general systemic circulation which is of benefit. The circulatory excitement incident to the beginning of any infectious inflammation can be antagonized by the use of sedatives, just as the circulatory excitement due to any cause can be so influenced, and the result sought for under such circumstances is not because an excited circulation is in itself harmful, but rather that indirectly the vaso-motor spasm forces a greater quantity of blood to the hyperæmic area which is infected. It is not necessary to describe the scientific facts which we have at our disposal to prove that veratrum viride is a useful vaso-motor depressant, and that its effects last so short a time that there is no danger of its producing a permanent cardiac depression. Cases of death from veratrum-viride-poisoning are medical curiosities, so safe is it.

It is here that I may be allowed to stop in the course of my address to emphasize one very important fact,—namely, that the use of both quinine and veratrum viride is solely with the hope of aborting or modifying the disease, and that it is an absurdity to employ either or both of them as abortives if the patient has passed the earliest hyperæmic stage of the malady. Only the physical signs and the space of time can tell us the probable condition of the inflammatory process. The condition of the pulse and the general system is even more important, for it is only in the strong sthenic case that veratrum viride or any other depressant should be employed. In a sickly, feeble case suffering from congestion threatening pneumonia such treatment can be at no time indicated. For these reasons, therefore, the most enthusiastic and most rational supporters of the use of veratrum viride do not use it, except in a very small percentage of cases, because they are seen too late or are too asthenic in type. So much, then, for the question of what can be done to abort or modify the severity of an attack in its early stages. This question as to the state of the patient's general system as regards vitality and strength is, after all, the whole foundation for the treatment of any infectious disease at any time, but particularly is this the case in pneumonia. Any one who attempts to treat pneumonia by routine in every case, and who fails to fit his treatment to the exact state before him, will speedily have bad results, be his treatment good or bad. It will fail most certainly in some instances where the dose of the poison is very great or the patient is peculiarly susceptible, and it will succeed in many others. Which ones will be benefited I do not believe any one can tell beforehand, but I know that we can tell beforehand the cases which will be harmed, and avoid this treatment.

From what has been said so far it must be evident that the largest experience is to be had with the patients who have passed the period of hyperæmia and gone on into that characterized by the consolidation of the lung; or, in other words, have developed a true pneumonia. Here, again, quinine is wisely given, not in massive doses, but in small ones, designed to support the system. There is, however, a much more important part of the treatment of this period in pneumonia, and that is to give nothing except to meet some distinct symptomatic indication. The patient has now reached the period when the disease is to run its course, and we cannot hope to shorten it. We can only protect the case through the storm of systemic poisoning until he reaches smooth water. Again and again do we see cases of pneumonia given stimulants at this time, until the pulse of the patient is far more bounding than that of the physician himself. Stimulants are more abused than used properly, and sometimes are so heroically employed that they produce effects contrary to the intention of the physician, who may thus inadvertently exercise a depressant action on the circulation when he thinks he is producing stimulation. A very notable instance of this paradoxical action of a drug may be found, I believe, in the results recently recorded in the *Bulletin Générale de Thérapeutique*, where Petresco, of Bucharest, records a large number of cases of pneumonia in which he employed digitalis in such doses as we would consider practically poisonous, and in which he obtained good results.

Alcohol, also, is a remedy still more abused than digitalis in the treatment of pneumonia. Both of these drugs are invaluable in some cases or at some time in the course of the malady, but neither they nor any other drug is useful in every case at every stage. Remedies in pneumonia must never be given by rule of thumb, but according to indication, and they are to be used to fight evil tendencies in the progress of the disease in the same manner as a general holds various parts of his army in reserve to check possible harmful movements of the enemy.

It has fallen to my lot to see a large number of cases of croupous pneumonia during the past few years, and, except in the alcoholic variety, I have never used alcohol, save in small amounts to aid digestion, because the first cases to which I gave it for its stimulant effect on the circulation did not thrive under it. In children, however, I believe it is the best stimulant we have.

The remedies which I believe are the three sheet-anchors of treatment for pneumonia after the exudation has taken place are digitalis, strychnine, and belladonna. Of these three I hardly know which to place first, but I am certain that the strychnine is the only one which we can use alone with advantage. The digitalis nearly always fails to stimulate the vasomotor system sufficiently, and the belladonna has to be added to regulate the blood-flow by its vascular action. Often, when using digitalis in pneumonia, the finger upon the pulse shows it to be full, but soft and boggy, if such a term may be used; and while the regularity and slowness, as well as the volume, may indicate the full action of digitalis, the patient fails to receive benefit and may have a leaky skin. Under these circumstances, belladonna, given in the dose of about 5 drops of the tincture every three or four hours, while the digitalis is given in 10-drop doses every six or eight hours, will produce marked improvement. The strychnine finds its great value as a whip to the entire system,—as a whip which will pull the patient out of collapse or syncope, or overcome the peculiar torpor which is so dangerous a symptom in this disease, indicating, as it does, that the Co_2 is accumulating in the blood, or that the poison of the disease is obtunding the nerve-centres. Particularly are strychnine and belladonna useful about the time of crisis, when the rapid fall of temperature takes away the stimulating effect of the heat and produces collapse. One case in particular always stands in my memory as a type of how much good these drugs may do. A child of five years, having passed through the earlier stages of pneumonia, rather uneventfully arrived at the period for crisis. On the day that crisis occurred it sat up in bed for an instant, although the pulse was already weak from the fall in fever, and at once called out, "Light the gas, it's getting dark," and then passed into profound collapse. The case was a desperate one, and, in addition to external heat, I gave hypodermically $\frac{1}{60}$ grain of strychnine and $\frac{1}{100}$ grain of atropine every fifteen minutes, till three doses were used, when the child showed signs of renewed vitality, became flushed from the atropine, and eventually recovered without any further symptoms of note.

The good results following the use of belladonna in such cases have impressed themselves upon me again and again, and the resident physicians in the wards of which I have charge have repeatedly noted the change for the better on the use of the drug. One, at least, has contributed to the THERAPEUTIC GAZETTE a report of the cases treated by this means, with the most happy effect.

I have not endeavored to go over the long list of remedies which are popular in the treatment of pneumonia, for two reasons: first, because many of them are useless; and, second, because the one important point in therapeutics is not to bunch drugs together as useful in a disease, but rather to remember that we are to make war on disease only when it is necessary, and not all the time as a matter of form. In illness the physician should not give drugs from beginning to end. He should be a watchman continually, and a therapeutist only when called upon by distinct indications.

DIPHTHERIA: ETIOLOGY, PATHOLOGY, DIAGNOSIS, AND TREATMENT, ESPECIALLY SERUM THERAPY.

READ BEFORE THE ATLANTIC COUNTY MEDICAL ASSOCIATION, ATLANTIC CITY, N. J., FEBRUARY 6, 1895.

BY D. BRADEN KYLE, M.D.,

Chief Laryngologist, St. Agnes's Hospital; Bacteriologist, Orthopædic Hospital and Infirmary for Nervous Diseases; Assistant Demonstrator of Pathology, Jefferson Medical College, Philadelphia.

THERE is no subject in medicine which in the past year has awakened such interest, both to the profession and the public generally, as this one of diphtheria. The disease has long been known and described, although its etiology and pathology were not fully understood.

Diphtheria is a synonyme for the word *diphtherite*, originally used by M. Bretonneau in his

admirable treatise of this subject, which was written in 1826, and which was based on his own observations in the epidemics of sore throat which occurred at Tours in 1818 and again in 1825 and 1826.

Bretonneau, in his paper, draws a perfect clinical picture of the disease, to which little has been added, except in the etiology and pathology. He clearly describes the membrane formation; hence the name *diphtherite*, which means a skin or membrane. The history prior to this paper is not clear, although literature dating back to even as early as A.D. 380 undoubtedly describes the disease, but not under one general name.

The earliest suggestion we have as to the possible bacterial origin was by Laycock, of Edinburgh, in 1858, when, in his published clinical lectures, he "regarded the disease as produced by a fungous growth due to the oidium albicans similar to thrush." Hillier, in 1859, regarded the disease as due to the *leptothrix buccalis*. Much has since been written on the subject, but it was not until 1883 and 1884 that the true etiological factor was determined.

In 1883, Klebs discovered the diphtheria bacillus, but did not isolate the germ. In 1884, Loeffler isolated the germ, produced with the pure cultures the disease in animals, re-isolated the germ, but failed to produce any paralysis.

In 1888, Roux and Yersin succeeded in producing the disease as well as the paralysis, which furnished conclusive proof as to the pathogenesis of the bacillus of diphtheria.

These observations have been confirmed by Von Hoffmann, Fränkel, Babes, Welch, Abbott, and many others.

Diphtheria may then be defined as a specific infectious disease, which is primarily a local infection, followed by a general systemic infection. That the germ is locally present is definitely settled, yet its presence in the blood of infected patients is still debated. The majority of investigators believe it is not, but that the constitutional manifestation is due to the absorption and dissemination of the alkaloidal products generated in the areas of local infection.

The definite results as to the etiological factor led to the experiments of vaccination against diphtheria; for the early work in this line we are indebted to Kitasato, Tizzoni, Koch, Behring, Aronson, Roux, and Yersin. The whole theory is really based on immunity. A few words as to this not yet thoroughly explained process.

It is a well-known fact that age, condition, and previous attacks render individuals immune to certain diseases; that measles, scarlet fever, and diphtheria are diseases of childhood, rarely of adult or middle age, and in old age the individual is, with the rarest exception, immune. Again, that in children exposed alike to infectious diseases, possibly all of one family will take the disease, or one may resist the attack.

This can even be carried further than individuals. Certain tissues of high grade resist infection and are practically immune; for example, muscular tissue is rarely infected by tuberculosis, the muscle may even pass through a tubercular abscess, as, for instance, the psoas muscle is often entirely encircled without becoming infected. There must, then, be something within the cellular elements, either of the tissue or fluids, which enables the individual to resist infection. This resistance secured by previous attack indicates that immunity can be acquired, and resistance to the disease without previous attack, that the indidual is capable of manufacturing a certain amount of immunizing material which increases his physiological resistance to disease. Personally, I believe that this power lies largely in the leucocyte or its nuclein product. This degree of immunity varies in different individuals.

If this assumption be true, the individual does not manufacture an *antitoxin*, but he *does increase* the capability of cellular elements to throw off or resist the invasion of the poison. It is not *antidotal* but *preventive medicine*.

In order to understand the entire subject, a short description of the preparation of the toxins of diphtheria is requisite. The method given is that of Roux and Yersin, and practically the same as used by Behring, as published in the government report by Kinyoun.

The toxins are prepared from a bouillon culture of virulent bacilli of diphtheria. Recent cultures are acid in reaction, old cultures alkaline; the latter should be used.

Various methods are given for the preparation of the toxins of diphtheria, but the following gives the best results: a virulent culture of the bacillus of diphtheria is selected,—one which is fatal to a guinea-pig weighing five hundred grammes in from twenty-four to thirty hours. From this culture a flask containing an alkaline nutrient peptone bouillon is inoculated. This is kept at a temperature of 36° C. for twenty-four hours; it will then show a marked growth of the bacilli. This may be used as a stock culture from which as many flasks can be inoculated as desired. The Fernbach flask is preferable, as it gives a more concentrated toxin than when the ordinary flask is used.

These flasks are large, flat-bottomed Florentine flasks, provided with a tube on the side, within about an inch of the bottom. The neck and tube are constricted near the mouth for the reception of the proper cotton plugs.

These flasks are filled to a short distance below the tube with an alkaline peptone bouillon and then sterilized. Soon after this the flasks are inoculated with the bouillon culture of the bacillus diphtheriæ, about forty cubic centimetres to each flask. They are then placed in the incubator for twenty-four hours, after which each flask is connected with an aspirator and a current of air is kept moving slowly through the flask from the mouth and to the tube. The air, before entering the flask, is passed through an ordinary wash-bottle, in order that it may be moist, so as to prevent the evaporation which would occur, as well as to maintain the best conditions for culture. This method is based on the fact "that so long as the bacterium remains in the active living state—or, in other words, maintains its integrity—little or none of those substances known as toxin or ptomaines are set free, but as soon as you present the conditions most favorable for the development of bacteria, the life of the individual bacterium is shortened, and it completes its cycle, ending in proliferation and setting free the nucleins. When the bacillus of diphtheria is grown in this manner there is a greater quantity of the nucleins formed than would occur under the ordinary methods of culture."

These flasks are kept at a temperature of 37° C. for from three to four weeks; the bouillon will then be filled with flaky masses of the bacilli. Microscopically, the masses are found to be nearly, if not all, disintegrated bacilli, or to have lost, at least in a great measure, their characteristic form.

The cultures are then filtered, preferably through a Chamberland filter-tube, into sterilized flasks, and kept until required for use.

Each lot of the toxins is tested for virulency by standardizing it by injections into guinea-pigs. The usual strength, being one-tenth of a cubic centimetre, will kill within twenty-four hours a guinea-pig weighing five hundred grammes.

If the filtrate is kept away from the light and maintained at an equal temperature, it will retain its virulency for a considerable length of time. Boiling or heating the culture not only impairs its strength, but alters its properties.

It is necessary that large quantities of cultures be kept growing, as it will require a large amount of the toxin to immunize the animal used to maintain the antitoxin in the blood after immunization is completed.

The antitoxin which is for the treatment of diphtheria is in solution in the blood of an animal rendered immune to the disease. There are two ways of producing immunity in an animal,—by injections of the *toxins* or by *inoculation* of the *bacilli*. The former is the best, and is now the only method used.

After experimenting with many animals, it has been found that the horse is the most satisfactory. It not only stands the process of immunization better, but gives a serum stronger than other large animals, besides furnishing a larger amount.

The following is the simplest method of immunization: a sound horse is selected, it first having been tested as to its reaction to tuberculin and mallein, the age of the horse being an unimportant factor,—usually from six to eight years. At first a trial injection of the toxin is made, which is usually less than a cubic centimetre, carefully noting the general and local reaction. In some horses even the trial dose has a profound effect, but usually there is quite considerable local and general reaction. If the animal becomes quite ill, a small quantity of Gram's solution is added to the next dose, and if the reaction is too strong, even in the next following. After this the horse bears the increasing dosage with little or no discomfort.

Usually, after the first injections there is quite a marked local and general reaction; some œdema at the point of injection, which is followed by a distinct inflammatory process, hard in the centre and soft and œdematous at its periphery. The general reaction is manifested by a rise in the temperature (1° to 2° C.), loss of appetite, and occasionally cramps. The degree of reaction controls the future dosage, and a sufficient time must be allowed to elapse between the injections for the complete recovery from the general and local effects, which varies from three to ten days. The general effects decrease as the quantity of the toxins is increased. Usually, after about two months' treatment the only reaction is the local œdema, which will continue even after the horse has come well under the influence, and the blood will be found to be rich in the antitoxin. "A peculiar feature in this immunizing process, as observed by Roux, Yersin, and Behring, is that at the end of the second month of the treatment, when the horse can bear as much as fifty to sixty cubic centimetres of the toxins without discomfort, the blood will be found to contain but little of the antitoxin,

and that it only appears after repeated stimulation of the cells (?) by the large and repeated doses of the toxins."

After the horse has been rendered immune, the blood is drawn from the jugular vein by means of a special trocar and canula. The trocar and canula are about four millimetres in diameter and are somewhat larger than the ordinary form. The top of the canula is shouldered so as to receive a metal plug, which is also canulated. This metal plug is attached to a rubber tube half a metre in length; to the other end of the tube is attached a glass tube of ten centimetres' length. The instruments, tubes, etc., are sterilized, and then kept in a five-per-cent. solution of carbolic acid. Ordinary wide-mouthed sterile bottles of two thousand five hundred cubic centimetres are used for receiving the blood. The surface over the jugular vein is then shaved and thoroughly disinfected. The skin is incised and the trocar and canula passed into the jugular vein; the trocar is withdrawn and attached to the sterile bottles.

Six to eight litres may be taken at one time. The blood is allowed to coagulate in the bottles, and they are then placed in an ice-chest. Within twenty-four hours the serum will be found to have separated. Usually from two and a half to three litres are obtained from each bleeding. The serum is withdrawn from the bottles by means of the pipettes and transferred to the proper receptacle, for use or preservation. A small piece of camphor should be placed in each bottle or flask; this tends to preserve it should any infection have occurred, and exerts an inhibitive influence against its deterioration.

There is a tendency of the serum to deteriorate after being kept for a while, especially when it is exposed to light or subjected to variations in temperature.

As the serum coming from different animals must necessarily vary in strength, some basis for dosage must be determined; this is done by determining the strength of the culture toxin by studying its effect on several susceptible animals of a given weight. For this purpose young guinea-pigs of five hundred grammes' weight are used. If .01 cubic centimetre of serum will protect a guinea-pig weighing five hundred grammes, then one cubic centimetre would protect an animal weighing five thousand grammes, or one gramme of the serum will protect an animal weighing fifty thousand grammes against a fresh virulent culture of the bacillus diphtheriæ. The varying strength of the serum from different animals is thus determined, and the so-called *antitoxin unit* is based on this. The weight being transferred to human beings, the approximate quantity necessary to render immunity is determined, this being based on the definite strength of the serum to confer immunity and the amount of poison to be counteracted, or, in other words, the severity of the case and the susceptibility of the individual.

As a rule, the tissues and symptoms furnish sufficient evidence to warrant the injection of the serum, yet neither the appearance nor quantity of the false membrane will decide the question of diagnosis and treatment,—namely, whether it is pure or complicated diphtheria; this can only be accomplished by a careful bacteriological examination. If this examination is desired, the tubes can be inoculated from the throat just before the injection of the serum, and the examination made later. For the purpose of determining the case from a bacteriological stand-point it is necessary to have a sterile cotton swab and blood-serum tube. The preparation of these are too well known to necessitate repetition. For the best methods reference is made to Park's article in the September copy of the *New York Medical Record* and an article by myself in the January copy of the *American Journal of the Medical Sciences*.

It is not even necessary in all cases to make tube inoculations, if in swabbing you are careful to gather in the meshes of the cotton considerable of the serous exudate; by keeping the tube containing the swab at a temperature of 37° C. for a few hours a fairly satisfactory examination can be made directly from the swab, or even without subjecting the tube to the incubator, but by directly staining the exudate, the presence of the germ may be demonstrated. If shown to be present, this method will answer; but should you fail to find the germ, tube inoculations must be made. The growth which will develop in the tube will contain many micro-organisms. When grown on the blood-serum, the bacillus of diphtheria, if kept at its optimum temperature, will develop before the other germs present, and will appear on the surface as minute grayish-white colonies, which spring up almost as pin-point elevations. Stains should be immediately made, the most preferable of which is Loeffler's alkaline methylene-blue. The germs which are allied with the membranous inflammations are the Klebs-Loeffler bacillus, the bacillus of pseudo-diphtheria (or Von Hoffmann's germ), staphylo- and streptococci. Microscopically, you cannot differentiate between Klebs-Loeffler's and Von Hoffmann's germ. Without waiting to isolate

the germ and test its virulence on animals, it is better to isolate your patient and treat it as a true case of diphtheria. The staphylo- and streptococci, especially the latter, will produce membranous inflammation without the presence of the bacillus of diphtheria. I saw at my clinic at the St. Agnes's Hospital last November two cases of fibrino-plastic or membranous rhinitis (a complete report will soon be published), in which the membrane extended from the nasal muco-cutaneous surface to the naso-pharyngeal membrane, involving the pharynx and tonsils; in these cases the membrane was distinctly laminated and sufficiently organized to cause considerable hemorrhage or capillary oozing when removed. The bleeding occurred *on the surface* of the mucous membrane, and there was *no ulceration*. The exudate was sufficiently organized to permit, after hardening in picric and chromic acids, the cutting of sections. From these sections the distinct lamination could be shown, as well as the process of organization. From these cases bacteriological investigation failed to show the presence of the bacillus of diphtheria or any germ resembling it, but staphylococci and a few streptococci were present. The tissue specially stained to demonstrate the presence of the Klebs-Loeffler germ gave negative results.

Pathologists and clinicians differ as to the pathological alterations in diphtheria; this is largely due to the irregularities in the etiological factor. Irrespective of cause, we have to deal with two distinct varieties of this membranous inflammation. That when the disease is due to a specific infecting agent, as the bacillus of diphtheria, the membrane forms on the surface, as in any membranous condition, but on its removal there will be bleeding, which is due to destruction of tissue or ulceration, and on microscopic examination this ulceration will be found to extend through the basement membrane, or that the nutrition which necessarily comes from the submucosa must be cut off; the area beyond, being dependent on these vessels for nutrition, undergoes infective, coagulative necrosis, with sloughing. In some cases of diphtheria where the visible membrane is slight, yet the constitutional symptoms are marked and paralyses are produced, there may be, low down in the air-passage, this ulceration.

We do have a variety of membranous or fibrinous inflammation occurring on mucous membrane in which there is no specific micro-organisms and in which there is no ulceration; the membrane can be easily stripped off and does not bleed, or if adherent and does bleed, it is due to the plastic material partially organizing on the surface, and when stripped off, if it does bleed, it is due to the capillary budding having taken place in the attempt at organization.

As to treatment with serum, the special syringe for administration of the serum consists of an ordinary glass barrel, like an aspirating syringe, but the fittings are made with asbestos and linoleum. The syringe can easily be sterilized by boiling water and a .5-per-cent. tricresol. It is made to hold about ten cubic centimetres of the serum. It is not at all necessary to have one of these special syringes; any ordinary hypodermic syringe with a large needle can be used, or even a new aspirating needle may be substituted, being careful as to sterilization. The dose varies from 5 to 40 cubic centimetres, but should be *given for effect the same as any remedial agent.*

If the theory is true, there is no danger in the dose of antitoxic serum, as it would be impossible to render the individual too immune.

The cases in which I have had the opportunity of studying the injections were made by pinching a fold of the skin in the intrascapular region and allowing the serum to be slowly injected; this should be repeated according to the demands of the case. After the injection is made, the spot is covered with absorbent cotton. This cotton forms a sort of collodion with the serum, which flows back through the orifice and thus completely closes it. A slight œdema occurs during the process of injection, but disappears within fifteen minutes or half an hour. There is no general reaction.

In the serum we have a remedial agent which may be used preventively or therapeutically.

When a case of diphtheria occurs, all who have been exposed should be protected by one injection of the immunizing serum, which is the strong solution. This will generally prevent an attack, or, in case infection has occurred, it will mitigate the attack.

With regard to the therapeutic use of the antidiphtheritic serum, there is one general rule to be followed under all circumstances: when a physician has a case which clinically is diphtheria, without waiting for a bacteriological examination and thereby losing precious time, he should immediately inject under the skin of the side twenty cubic centimetres of serum, the dose and its repetition depending on the age of the individual and the severity of the case; if a large dose is given, it should be injected

in divided doses and at different sites. No serious objection can be made to these injections; the only risk incurred is in giving rise to slight urticaria.

Too much importance cannot be given to the early treatment of the disease. After the absorption of the alkaloidal products (toxins) which are generated at the point of infection, the functional activity of the cells is impaired; the degree of impairment depends upon the resistance manifested on the part of the individual and the amount of the toxin generated, as well as the length of time the cellular elements are subjected to the destructive influence of the toxins. If this has reached a stage of pathological alteration of tissue, we cannot hope to have in antitoxic serum a remedial agent; it no doubt would arrest the progress of the disease and possibly enable the tissue to resist further infection. As to its effect on the germ, "It is a well-known fact that environments alter the characteristic features of all germs. That in the description of the germ, temperature, light, culture medium, and absence or presence of other bacteria must be taken into consideration; also the laboratory germs which depend on artificial nutrition differ somewhat from those found in the body. This is especially true of the bacillus of diphtheria, which is demonstrated by the difference in the descriptions given by various authors. The alteration of the Klebs-Loeffler bacillus, as due to the age and condition under which the germ was found and grown, has been the subject of careful study. Now, as to the effect of the blood-serum on the germ, it is not claimed that the antitoxin has any direct action; but by counteracting the poison in the system produced by the product of the germ, the resistance on the part of the patient manifested at the nidus of infection indirectly affects the germ's nutrition, thereby altering its character."

The cases which I studied at the Municipal Hospital, although only four in number, undoubtedly showed marked alteration, which alteration was more marked than in cases in which no serum was used, the germs being grown on the same culture media and under the same conditions. The same can be said of the laboratory germs upon reinoculation of attenuated growths.

Statistics show that when the treatment is begun on the first or second day of the disease, the mortality is reduced to almost one per cent., but that it gradually increases when treatment is delayed, and by the fifth or sixth day the mortality is almost as high as when no serum is used. This points, then, to the immediate injection of the serum before serious tissue alteration and profound toxæmia have occurred.

While serum therapy is new, yet a sufficient number of cases have been treated to warrant some fairly definite conclusions. With all new remedies much is to be learned as to their administration, the time of administration, the indications, the dose, and their repetition.

From the latest tabulated statement as given by Foster, serum antitoxin gives in two thousand seven hundred and forty cases of diphtheria a mortality of only 18.54 per cent.; taking an equal number of cases not treated with the serum, but by the ordinary methods, the mortality was 45.36 per cent., showing a reduction in the mortality of 26.82 per cent. Surely, in this large number of cases such a difference could not be accidental. Yet there are many who have maintained a certain reserve and an attitude of implied criticism regarding the new treatment of diphtheria. Among these has been such an eminent pathologist as Virchow; but at a meeting of the Berlin Medical Society he presented some statistics which clearly places him in the position of a warm advocate of serum therapy. His report reads as follows:

"During two months sixty-three patients were treated with the serum at the Emperor and Empress Hospital, of whom eight died. The supply of serum became exhausted, owing to the death of the horses from which it had been obtained, and the old treatment was necessarily resorted to. During seven weeks one hundred and nine patients were treated, of whom fifty-five—or more than half—died. The serum was then obtained from another source, and in six weeks seventy-one cases were treated, with but twelve deaths. The total figures for the whole period were five hundred and thirty-three cases treated,—three hundred and three with the serum and two hundred and thirty without. In the former class the percentage of deaths was 13.02 and in the latter 47.08."

Professor Virchow said that, in view of these results, he held it to be the duty of every doctor to use the serum. "All theoretical considerations," he said, "must give way to the brute force of these figures." He continued that, even if disagreeable by-effects were proved to occur occasionally, they were not sufficient to prevent him from continuing the treatment.

Reserve is still maintained by others, however, and we cannot wholly disagree with them in the opinion that an absolute fixing of

the value of the treatment must await much more clinical experiment.

Even if this is an antitoxic agent, it must be remembered that its action is largely constitutional, and that local treatment and even stimulating constitutional treatment should also be employed.

The infected mucous membrane surfaces should be frequently and thoroughly cleansed and the patient stimulated. The methods usually resorted to are too well known to necessitate repetition. Loeffler has been able with his toluol solution to obtain as good results in his diphtheria cases as have been obtained with the serum treatment. The solution he uses is highly germicidal. It will destroy pure cultures of the Klebs-Loeffler bacilli and also of the germs closely allied to this disease, especially the streptococcus, when exposed to the solution for only a few seconds. Although I have not tested its efficacy in actual cases of diphtheria, yet I can testify to its germicidal properties. This solution consists of—

Alcohol, 60 parts;
Toluol, 36 parts;
Liq. ferri sesquichloride, 4 parts.

The infected areas are swabbed with this solution every few hours (two to four). It readily dissolves the membrane. Loeffler has obtained equally good results by adding creolin to the solution in place of the iron. To relieve the pain, he adds menthol.

It is to be hoped that the future use of diphtheria antitoxin will continue to be as beneficial as that which so far has attended its use. If the whole theory be true, we have in this method of serum therapy an effective remedy not only in diphtheria, but in *all infectious diseases*.

THE PROTECTIVE SUBSTANCES OF THE BODY AND ANTITOXIC THERAPEUTICS.

A Paper read before the Medical and Library Association of Detroit, February 18, 1895.

By Karl Schwickerath, A.M., Ph.D., Detroit, Mich.

IN submitting to you this evening a rapid sketch of the researches made of recent years in the domain of "the protective substances of our organism," I am duly mindful, first, of the honor conferred upon me by the invitation of your President; and, secondly, that the great mass of literature on immunity and immunization renders it scarcely possible for the busy practitioner to obtain a clear insight into the latest investigations in this domain.

You know, gentlemen, that through the researches originally undertaken by Pasteur, and very highly elaborated by Koch, into those diseases which are attributable to infection, one fact was firmly established,—that human infection is to be imputed to animated micro-organisms. An infectious disease is provoked and maintained by living micro-organisms, either directly through their parasitic existence in the organism or indirectly through the poisons or toxins produced by the micro-organisms. We can, therefore, readily comprehend how an infectious disease may overcome the vitality of the organism. But why does an infected organism not succumb in every instance to attack, despite the fact that the capacity for self-multiplication inherent in the germs is in itself unlimited? Nägeli assumed that certain parts of the organism offer a resistance to the infectious element, varying with different cases, and he regarded the relation between the infectious germs and the vital powers as a "competitive struggle," the number of the infecting germs concurrently present in the organism being naturally the deciding factor in determining the issue of the combat. The morbid potency of the bacteria he explained on the theory that these withdraw from the tissues their best nutritive elements, and from the blood-corpuscles the oxygen, forming poisonous products of decay and secreting ferments. The disturbance produced in the human organism by the vegetation of schizomycetes—those bacteria which multiply by division—is followed by reaction, which, according to Nägeli, tends to restore the normal chemical constitution of the bodily juices. This "competitive struggle" was demonstrated by Metschnikoff under the microscope, and formed the basis of his phagocytic theory. Metschnikoff applied the same phagocytes to the white blood-corpuscles, for the reason that they fulfilled, as he contended, the function of taking up and digesting in their bodies the micro-organisms. If the phagocytes succeed in overcoming the intruders,—the micro-organisms,—the disease terminates benignly. The chances of the combat are, however, determined by the number and energy of the combatants. Further investigations have shown, however, that the blood-serum and the cell free tissue juices possess independent antibacterial properties. Buchner believes that the substances on the presence of which this action is based are albuminoids. He applied to this new category of albuminoid bodies, which serve to protect

the organism against bacterial invasion, the name of "alexins," or protective substances, which comprise the sozins and phylaxins of Hankin. Hankin applies the name of sozins to the protective albuminoids occurring in the normal animal, and by the term phylaxins he refers to those occurring in animals which have acquired immunity through artificial treatment. Vaughan and McClintock, in their recent treatise on the nature of the germ-destroying constituents of the blood-serum, have proved that the germicide substance in the blood-serum (the "serum alexins" of Buchner) must belong to the nucleins and not to the albuminates. By precipitating fresh blood-serum with alcohol-ether, digesting the precipitate with pepsin in a hydrochloric acid solution, and finally dissolving the undigested residue in a weak solution of caustic potash, these investigators succeeded in obtaining a liquid which possessed the property of destroying various species of bacteria distributed or sprinkled over a given surface. Accordingly, the bactericide substance of the blood cannot be an albuminoid. We know that the albuminoids are transformed into soluble peptones by pepsin and hydrochloric acid; but nuclein withstands this digestive process. Aside from the bactericide solution of nuclein from blood-serum, Vaughan has obtained similar nuclein solutions from yeast, testes, thyroid gland, spleen, thymus gland, etc., and in each case the product obtained demonstrated its bactericidal potency. With respect to the derivation or origin of the nuclein present in the blood-serum, it was experimentally proved by Vaughan, as well as by Hankin, that it must be derived from the leucocytes. The more recent investigations of Buchner confirm this statement in a somewhat striking manner. Buchner obtained by the injection of sterilized emulsions of wheat gluten into the pleural cavity of rabbits and dogs exudates which were rich in leucocytes, free from bacteria, and possessing more powerful bactericide properties than the blood and serum of the same animal. That only a secondary *rôle* is to be ascribed to phagocytosis in the sense of Metschnikoff, is shown by the fact that by freezing and then, in turn, thawing the exudate, the phagocytes may be readily excluded. On freezing, the bactericidal alexins (nucleins) remain unmodified, whereas the leucocytes are destroyed. Inasmuch now as the exudates, first frozen and then thawed, exert quite as pronounced, or even a more pronounced, bactericidal potency than the unmodified, Buchner arrived at the conclusion that the bactericidal action is to be attributed to the substances held in solution, which are, indeed, derived from the phagocytes.

What do we mean by nucleins?

The nucleins form the chief chemical constituents of the living parts of the cells, by virtue of which the cells grow, develop, and reproduce themselves. The number of species of nucleins, therefore, is limited only by the varieties of the cells. The nuclein of the yeast-cell is not identical with that of the spleen or thymus gland. Chemically, the nucleins are complex proteid substances, characterized by the large amount of phosphorus which they contain. The phosphorus exists in the form of nucleinic acid, which is combined with a highly complex basic substance, yielding as decomposition products one or more of the so-called xanthin bases. The nucleins are insoluble in alcohol and water, but readily soluble in dilute alkalies. It would lead me too far if I were to expatiate on the chemical constitution of the nucleins, a domain of investigation in which Professor Kossell has rendered a great service. It is fitting, however, that I refer to the interesting labors of Horbaczewski, which have shed light on the relations of nuclein to uric acid. Hitherto uric acid has been regarded as the incomplete, and the urea as the complete, combustion product of nitrogen. From the close chemical affinity of uric acid to xanthin, Horbaczewski now concludes that uric acid is to be regarded as a metabolic product of nuclein. And, indeed, we find that wherever there is abnormal leucocytosis, it is accompanied by a more profuse excretion of uric acid. In children, for example, in whom the number of nucleated cells is comparatively greater than in adults, we find the amount of uric acid correspondingly greater.

But after this short diversion I return to my theme. After Vaughan had found that the nucleins possessed bactericidal properties, it was natural for him to inquire whether the nucleins could not be therapeutically employed; perhaps they might be utilized to prevent or arrest the growth of germs in the animal body. These investigations have shown that rabbits and guinea-pigs can be protected against virulent cultures of diplococcus pneumoniæ by previous treatment with hypodermic injections of a solution of yeast nuclein. The action of the nuclein, however, in imparting immunity from the effects of pneumonia germs, does not seem to be due to the direct germicidal effect of the nuclein. The latter, although a product obtained by the dissolution of leucocytes, provokes, when administered hypodermically, as Vaughan has demonstrated, leucocytosis. The

value of nuclein in therapy is in all probability, therefore, due to its effecting an increase in the entire number of white blood-corpuscles, which, as we have seen, exercise a very important function in the natural protection of the organism against bacterial invasion. In other cases, however, such as membranous tonsillitis and streptococcus diphtheria, in which Vaughan has also employed nuclein with benefit, the effect must be ascribed to its direct germicidal action.

As I have stated, the nucleins are distinguished by their ready solubility in dilute alkalies, justifying the conclusion that the alkalinity of the blood may bear a very close relation to the secretion of nuclein by the leucocytes, and which latter we must now regard as the vehicles of the bactericidal substances. Von Fodor has recently demonstrated that the organism reacts against certain pathogenic influences, with very rapid increase in the content of alkali in the blood-serum, this reaction being followed by a more or less pronounced decrease thereof. If the infection be terminated by a fatal ending of the disease, the decrease in alkalinity is considerable and progressive; but if the termination be not fatal, this effect is expressed in a less pronounced reduction of alkalinity. Von Fodor believes that animals the alkalinity of whose blood is pronounced, or in which this alkalinity is energetically augmented after invasion, are in general capable of a greater resistance to the effects of bacterial invasion. The great alkalinity of the blood, and the capacity of the organism to react from the infection by an energetic increase of alkalinity, would accordingly seem to exert a noticeable influence on immunity and on the susceptibility of the individual to infectious diseases. A Russian investigator also (Poehl) ascribes an important *rôle* to the alkalinity of the blood in his theory of immunity. Poehl states that when micro-organisms gain access to the body, leucocytosis is brought into play. If leucocytosis proceeds in an alkaline medium, soluble spermin is formed, which restores to the animal the respiration of the tissues,—that is, the oxidation process which is going on in the organs; and a greater capacity for resisting pathogenic micro-organisms is imparted to the system. Poehl's spermin is produced by the dissolution of the nuclein-bearing white blood-corpuscles. Dispensing now with the term "spermin," and employing in its place the substance recognized by Poehl to be the parent or source of spermin (nuclein), we find a complete harmony between the views of Vaughan, Poehl, and Buchner with respect to natural immunity,—views which are based on the bactericide potency of certain soluble constituents of the blood of tissue juices. These soluble constituents are the so-called alexins of Buchner or the nucleins of Vaughan.

These properties of the blood, by virtue of which it is capable of combating the development of bacteria, and also of exerting bactericide action, cannot, however, be regarded as the only means at the command of the living organism for defence against the deleterious influence of pathogenic bacteria. Further resources for the struggle must be furnished, which need have no direct influence on the micro-organisms, and which are capable of so modifying the poisonous substances or toxins produced by such micro-organisms as to render them innocuous. Brieger has shown us that the living disease-producer exerts its pathogenic action through the production of poison, and Roux and Yersin were the first to demonstrate that the broth in which diphtheria bacilli had been cultivated contained a very concentrated poison. Kitasato and Brieger proved that injection into the animal body of pure tetanus toxins obtained in artificial cultures produced symptoms identical with those induced when the tetanus bacteria themselves were introduced into the experimental animal and allowed to grow and multiply therein. These specific poison substances which the pathogenic bacteria secrete during their growth and multiplication are called "toxins." These poisons differ from one another in accordance with the species of pathogenic bacteria, and the changes produced in the animal body by different microbes are due to these toxins. Behring accordingly classifies the disinfecting properties whose presence in the blood may be demonstrated into,—

1. Antibacterial properties; in other words, those inimical to bacteria and their propagation.

2. Properties capable of destroying or enfeebling bacterial poison; in other words, antitoxic properties.

When Behring, in common with Kitasato, showed the enormous capacity possessed by the blood of rabbits which are rendered immune to tetanus for destroying the poison introduced into the organism, the thought was at once suggested to Behring that it would be well to test the therapeutic value of such blood as applied to other animals susceptible to tetanus, and the result surpassed his most sanguine expectations. It was shown beyond question that the cause of acquired tetanus immunity is to be sought in the soluble constituents of the blood,

especially as the same results could be obtained with the serum. The inevitable inference was that the blood must contain something which was not present before, and this something must be an "anti"-toxin. Conceding the correctness of this hypothesis, and bearing in mind that the antitoxin is first formed in the blood as a result of introducing bacterial poison or toxin, the specific curative substance in all its activity and potency must be present in the blood of every individual who has survived an infectious disease. Proceeding from this view-point, Behring endeavored to obtain an antitoxin in such potent form and abundant quantity as to yield the means of healing the sick and protecting the exposed, and it is the great merit of Behring that he first conceived and executed the thought that blood-serum may be utilized in practical therapeutics.

Since, now, with the help of the living etiological factor, we can produce a specific toxin, we are further enabled to infect a series of animals and to develop antitoxin in their blood. Thus far we are familiar only with the toxin of tetanus and diphtheria. All animals which are susceptible to either of these poisons may be utilized for inoculating with toxin. For the special purpose of obtaining the serum curative of diphtheria, Behring employed horses, cows, sheep, and goats. The method of treating these animals for the purpose of obtaining the curative serum, although doubtless familiar to you, I shall take the liberty of briefly outlining.

First, the animals are rendered immune to the disease by the prolonged injection of minute but gradually increasing quantities of diphtheria toxin. In order to obtain this toxin, flasks containing nutrient broth are inoculated with the bacilli and maintained for several weeks at a temperature of 37° C. At the expiration of this period of incubation, the contents of the flasks are filtered through a Chamberland filter, which arrests the bacilli. The clear filtrate thus freed from the bacilli is a virulent poison; hence it is properly termed diphtheria toxin. This toxin is injected into animals in minute but increasing quantities, the initial doses being so small as to cause only transient symptoms. It is found that animals so treated are finally enabled to withstand the injection of such doses as would prove quickly fatal to an uninoculated animal of the same weight and size. When the animal has thus been rendered immune, its blood-serum possesses the important property of protecting other animals from the disease. It is a noteworthy fact that the antitoxins are likewise present in the milk. The horse has proved to be the animal best suited for the purpose of antitoxin production.

The theory that such animals as possess a natural immunity from a given infectious disease—as the rat, for example, with respect to anthrax—yield a blood with which other animals may be healed or immunized has not proved true, and the incorrectness of this theory furnishes further proof that natural immunity must be referred to quite a different cause.

With respect to the chemical nature of the toxins and antitoxins we as yet know little. Toxins are by some regarded as enzymes and by others as toxalbuminoids. The antitoxins are regarded by Roux and Pfeiffer as products resulting from the activities of the living cell; and these products, they contend, are developed by the action of unknown substances or causes on such cells.

And what conception are we now to form of the physiological action of the antitoxins? The first theory advanced by Behring was a very natural and plausible one: the poison is simply destroyed. For the purpose of imparting immunity from pathological infection, substances are formed in the organism which destroy by "chemical" action the poisons produced by the bacteria. This theory is supported, first, by the fact, as Behring claims, that in the test-tube we may readily demonstrate the destruction of the poison by mixing the serum and toxin. A further proof is afforded in the quantitative relations existing between toxin and serum, inasmuch as correspondingly larger quantities of serum are injected in order to impart immunity from a more virulent intoxication. Now, if we assume that the poison is destroyed by chemical combination, we find it difficult to explain why the quantities of serum necessary to suppress or quench the toxic process fluctuate so greatly, according as they are injected before or after infection. Buchner has now proved indubitably that no chemical union takes place—no destructive action—on mixing the poison and the counter-poison. Buchner combined the toxin and the antitoxin, producing both in solid form with sodium-ammonium sulphate, the toxin from a filtrate of tetanus culture and the antitoxin from the serum of immunized animals; and when the mixture was administered, even in tolerably large quantities, the majority of the mice receiving the injections exhibited no reaction. On injecting the same quantity into guinea-pigs, which weigh about twenty times as much as the mice, the guinea-pigs succumbed, while manifesting symptoms of tetanus. The proper conclusion is that the poison was no

destroyed, inasmuch as, if it had been, a fatal issue could not have followed the injections made into the guinea-pigs. I must add, that the guinea-pig is far more susceptible to the tetanus poison than the mouse; on the other hand, the mouse is a far lighter animal, and small doses of toxin which are harmless to a guinea-pig are capable of killing white mice. For these reasons—viz., that antitoxin does not possess poison-destroying properties, but only immunizing power—Buchner concludes that the antitoxins are bacterial products, constituents of the specific bacterial plasma, inasmuch as all experiments made since the beginning of Pasteur's researches into immunization have taught that the latter is accomplished by specific cell-substances. According to Buchner, the antitoxin exists side by side with the toxin in the original culture, and in the process of immunizing the animal he claims that nothing more is accomplished than a separation of the protective and poisonous substances of the bacterial cultures. For this reason Buchner also considers it probable that we shall presently be able to obtain antitoxin directly from the cultures, without the intervention of the animal organism. According to the more recent investigations of Gabritschewsky respecting the *rôle* of leucocytosis in diphtheritic infection, the diphtheria toxin possesses the power of inducing necrosis: it is capable of assailing the cells and suppressing the phagocytic function. The curative serum, however, renders the cells of the organism less sensitive to the necrotizing action of the toxin.

As I have previously stated, we have thus far succeeded in producing only two antitoxins,—a tetanus and a diphtheria antitoxin. In its practical bearings the latter possesses one advantage over the former, inasmuch as it may be administered at a time when the toxins have not yet gained access to the entire organism. The development of pseudo-membranes in the larynx renders possible an early diagnosis. With tetanus, however, the general or constitutional convulsions are the first symptoms of the disease, but they, unfortunately, are likewise the expression of a profound constitutional infection. For these reasons the treatment of diphtheria affords chances which are more favorable from the very outset. Even on theoretical grounds, the antitoxin will be all the more efficacious the sooner it is administered, since so much less toxin or poison will have already penetrated the organism.

The great value of Behring's sero-therapy does not, however, consist in the curative action of the antitoxin so much as in its defensive virtue. The protection from poisoning afforded by antitoxin possesses an advantage over any similar protection imparted by modifying or attenuating the bacterial products (for example, vaccination against small-pox), in that the inoculation proceeds without any pathological symptoms, and in that protection is instantaneously afforded. Per contra, the duration of the protection afforded by the antitoxin is briefer.

At this point I deem it fitting to refer to the distinction between inoculation and vaccination. About a hundred years ago (in 1796) Jenner made the great discovery that artificial infection with cow-pox—a quite harmless disease—was capable of imparting protection or immunity from human small-pox. The conception of small-pox inoculation, on the other hand, was suggested by the fact that small-pox—and the same is true of most infectious diseases—rarely attacks the same person twice, and in the exceptional cases the second attack supervenes only after a long interval. It was accordingly concluded that an infectious disease so modifies the secretions of the invaded body as to render the latter an unfavorable soil for the propagation of the disease-producer. The very weighty observation was further made that mere survival from mild attacks of such diseases was sufficient to afford protection from future invasion. The attempt was, therefore, made to produce by the inoculation of small quantities of the disease-product obtained from a case of true small-pox a genuine but mild variola, thus creating immunity from the far graver disease acquired in the natural manner. But the subjects protected by this method—by inoculation—became a menace to their uninoculated environment, and indeed contributed greatly to the dissemination of small-pox. It was only when Jenner introduced his method of vaccination with cow's lymph—the morbid product of cow-pox—that the first practical method of immunization was discovered.

Since we now know that the more active and potent the solution of diphtheria antitoxin employed the more certain and prolonged is the protection thereby assured, it may be asked, What means have we for determining the strength of an antitoxin? The standardization of antitoxin is effected by observing closely the results of physiological experiments.

The first step is the administration of the lethal dose for an animal—such as a guinea-pig of known weight—of a known solution, which has been prepared in sufficient quantity to form the standard for a large number of cases. The quantity of antitoxin which must

be previously injected to protect the animal from the action of this lethal dose is then determined, and the ratio between the weight of antitoxin and the bodily weight of the animal furnishes a means of representing in definite units the strength of the solution. Thus, a sample of antitoxin may be said to possess a strength of fifty thousand normal units when an animal is protected against its minimal lethal dose of toxin by the injection of a quantity of the antitoxin equal to one-fifty-thousandth of its bodily weight.

If this new diphtheria cure proves all that is claimed for it, we may expect that in the near future other infectious diseases will prove amenable to the same system of treatment.

But whatever may be the ultimate fate of this new treatment, the reports thus far published attest, for by far the greater part, the virtue of Behring's sero-therapy. Medical science is progressing in the direction of obtaining immunity from disease. Despite the partial failure of tuberculin, these researches have never once swerved from the chosen path, and in that path they will unquestionably achieve further progress. Many dissenting opinions have been expressed with respect to the practical results accruing from bacteriological researches, but it cannot be disputed that from the bacteriological laboratories ideas have gone forth which have exerted a stimulating and fructifying influence on medical thought and practice.

TREATMENT OF SPRAINED ANKLE.

GIBNEY (*New York Medical Journal*, vol. lxi., No. 7) describes a treatment which he claims involves no loss of time, requires no crutches, and is not attended with any impairment of function. Strips of rubber plaster are employed, each about twelve inches in length and an inch in width. The first strip is applied on the outer border of the foot, near the little toe, and ending on the inner side of the foot, about its middle, just under the plantar arch. The second strip is applied vertically, and passes from about the junction of the middle with the lower third of the leg, down alongside the tendo Achillis, over the heel, and terminating at a point just above the internal malleolus, but posterior to this. The remaining strips are applied in the same way, one overlapping the other about half, until the whole external malleolus and side of the foot up to the middle third of the leg are covered. It is well to re-enforce just under the malleolus by strips passing criss-cross, so as to give additional support to the part sprained. It is also important to have the strips overlap each other, especially over the tendo Achillis and about the heel, as any slipping at these points may cause an unnecessary irritation when the boot is applied.

Figures illustrating the method of applying the strips are shown, demonstrating that the ankle is not completely encircled, thus avoiding constriction. When the sprain involves the tarsal joint or the mid-tarsal joint, and where the whole foot is involved in the swelling, the first strip starts on the inner side of the heel, passes back of the heel below the external malleolus, over the dorsum of the foot, and terminates just under the ball of the great toe. The second one is started just under the external malleolus, passes over the back of the heel, over the front of the foot, and terminates just under the outer side of the foot near the small toe; the subsequent strips overlapping upward, as before described, and at times extra strips being applied up and down over the tendo Achillis, the ends terminating at the sole of the foot. Over the ankle, thus strapped, a cheese-cloth bandage is snugly applied, beginning at the ball of the foot and extending up to the middle third of the leg. In cases where the toes are much swollen and where the whole ankle must be strapped, and where it is impossible to leave any space uncovered, every toe should be strapped separately before the ankle dressing is applied. This precaution is necessary to avoid swelling of the toes and to insure additional comfort to the patient.

Before any strips of plaster are applied, it is good practice to elevate the foot overnight or for a few hours, and employ immediate massage of the parts for a few minutes, then apply a roller bandage until one is ready to adjust the dressing.

A number of illustrative cases are cited. The author states that this is the stereotyped treatment in the out-patient department of the Hospital for Ruptured and Crippled, at his clinic in the College of Physicians and Surgeons, and has been for years followed in the orthopædic department of the New York Polyclinic.

The theory of the method of treatment advocated is that the equable support given to the tendons and ligaments about the joints results promptly in resolution of all effusion, and that the functions of the tendons and ligaments are thus promptly restored; that use of the ankle is very desirable, and that the cure is brought about by the normal action of the foot.

The Therapeutic Gazette

EDITED BY
H. A. HARE, M.D.,
GENERAL THERAPEUTICS.
AND
EDWARD MARTIN, M.D.,
SURGICAL AND GENITO-URINARY THERAPEUTICS.

GEO. S. DAVIS,
Medical Publisher, Box 470,
DETROIT, MICH.
Philadelphia, 714 Filbert Street.

SUBSCRIPTION RATES FOR 1895.

THERAPEUTIC GAZETTE (postage included).....$2.00
THERAPEUTIC GAZETTE with MEDICAL AGE..... 2.50
THERAPEUTIC GAZETTE with WESTERN MEDICAL REPORTER..... 2.50
THERAPEUTIC GAZETTE with BULLETIN OF PHARMACY..... 2.50
THERAPEUTIC GAZETTE with AMERICAN LANCET 3.25
THERAPEUTIC GAZETTE with AGE and LANCET... 4.00

Foreign subscriptions may be ordered through our agent in England, Mr. H. K. Lewis, Medical Publisher and Bookseller, 136 Gower Street, London. Price 10s. Remittances may be made either by Postal Order or Stamps.

Price to Foreign Subscribers direct (postage included), $2.50 (10 shillings). English postage-stamps received on remittances.

Editorial communications should be addressed 222 South Fifteenth Street, Philadelphia. Articles intended for the Original Department of the GAZETTE will be accepted only with the understanding that they are contributed to it exclusively.

Authors will receive reprints in pamphlet form, without charge, provided the request for them be written on the articles sent.

Business communications should be addressed to the Publishers.

Leading Articles.

THE TREATMENT OF DIARRHŒA.

WE do not intend in this short article to discuss the remedies which are commonly employed by way of the mouth in the treatment of diarrhœa, but rather to call attention to the importance of employing rectal medication in many conditions of disease in which the symptom is well developed. Rectal medication under these circumstances possesses the advantage of bringing the medicament near to the seat of trouble, avoids offending the taste through the use of nauseous medicines, and, more important than all, leaves the stomach and upper portion of the digestive tract unimpaired for the assimilation of concentrated nourishment or of such medicines as the general condition may indicate. It is true that the acute diarrhœas of indigestion are more readily controlled by the administration of medicines by the mouth, simply because only a few doses are required, and the patient is generally unwilling to suffer the inconveniences associated with rectal medication, though, if the disease be at all chronic, these inconveniences are so slight that, for the sake of relief, he gladly puts up with them.

Aside from the administration of opium and astringent substances by means of suppositories or small injections, we believe that large rectal injections, or injections of sufficient size to wash out the sigmoid flexure and colon, are not sufficiently resorted to, particularly in those cases of diarrhœa in which a catarrhal element is well marked. In these catarrhal cases it will generally be found that mixed with the watery portion of the discharge there is more or less mucus in strings or flakes, which indicates, as a rule, that a certain amount of the trouble, at least, is situated in the colon. While the rule is by no means an absolute one, the presence of large quantities of mucus indicates very strongly that the whole trouble is in the larger bowel. It is evident, therefore, that the use of drugs by the mouth is a very indirect way of influencing the diseased area, since the medicament must pass through the œsophagus, the stomach, the duodenum, and the small intestine before it arrives at the point where its therapeutic efficacy is to be developed. On the other hand, good results are attained if large clysters are given by means of a hydrostatic syringe elevated not more than eighteen inches or two feet above the rectum. Such treatment will frequently control the movements, limiting them to one or two in twenty-four hours, even if the fluid character of the stool remains unchanged. Various substances have been employed dissolved in the water to be injected. Some of them have not only a powerful local action, but, in addition, are capable on absorption of producing wide-spread influences throughout the body. Among these may be mentioned salicylic acid and its relatives, nitrate of silver, iodoform when given in oil emulsion, and some of the vegetable astringents. The substance which has always given us the best results under these circumstances is the sulphocarbolate of zinc in the proportion of 10 to 30 grains to an injection amounting to from 2 to 3 quarts. In some instances the water should be tepid, in others it should be as hot as the bowel can stand, and in still others it should be quite cold, the temperature of the injection depending largely upon the acuteness of the inflammatory process and the sensations of the patient, for in the same way that an application of cold water is grateful to a sprained ankle of one individual, while another prefers hot water, so does one patient get comfort

from cold injections and another from heated ones. If the water be cold, care should be taken that undue chilling of the body does not result in feeble persons, or if hot, on the other hand, that a mild degree of heat fever is not produced. The success of this treatment depends absolutely, in many instances, upon the gentleness and care with which the injection is given, and the water must be allowed to trickle into the bowel rather than to enter it with any force, for the three reasons, that (1) if force is used, the bowel immediately resists the injection and perhaps forces it out. (2) It becomes so irritable that further injections are impossible. (3) This condition of rectal irritability reflexly causes irritability of the entire intestinal tract in much the same way that rectal ulcer may cause diarrhœa, and, as a consequence, the patient is worse than before the method was attempted. In those cases of chronic diarrhœa in which the patient is markedly emaciated and unable to digest much food, so that the condition of impaired nutrition is an important factor in preventing recovery, this method of treatment is to be highly recommended, and it is worthy of note that a small rectal injection, amounting to an ounce or two of iodoform and sweet oil emulsion, in the proportion of 5 grains to the ounce, injected into the bowel after a large watery movement has passed away, will relieve any tendency to tenesmus and, by the absorption of a small amount of iodine, exercise a useful influence over the catarrhal process which underlies the symptom which we are treating.

IS ETHERIZATION BY THE RECTUM PERMISSIBLE?

IN the *Quarterly Medical Journal* for January, 1895, Stedman, of Sheffield, publishes an article upon "Rectal Etherization," in which he details ten cases in which he administered the anæsthetic by passing the vapor of ether into the rectum. He concludes his remarks by stating that he cannot understand why this method is not more frequently resorted to, and most strongly urges its employment by all hospital surgeons, particularly in operations about the face or mouth, during which, as every one knows, it is difficult to administer ether by the respiratory passages.

This subject which is thus brought before the profession once more is one of very considerable interest. Undoubtedly there are strong therapeutic reasons for administering ether otherwise than by inhalation in all operations about the face and mouth, and particularly in those persons who have a tendency to, or who already have developed, bronchitis or other pulmonary trouble.

On the other hand, we believe that the disadvantages of this method exceed any gains which it may bring to us. The suggestion that ether be employed in this manner is by no means new, it having been resorted to as long ago as 1847 by Pirogoff, and since then by a number of European and American surgeons, among whom may be mentioned Dr. Weir and Dr. Bull, of New York.

Certainly a sufficient number of cases have been anæsthetized to have called the attention of the profession to the possibilities of such a procedure, and we believe that its less general employment rests upon the fact that the average experience has been against its further trial.

Stimson asserts that several deaths have resulted from it, and Weir has reported an instance of a child of eight months who received the vapor of two ounces of ether by the rectum and who died the next morning, melæna having supervened.

In the *New York Medical Record* of May 3, 1884, Dr. Bull has also published seventeen cases, in seven of which melæna took place, and there are a large number of cases in which violent irritation, diarrhœa, or other evidences of intestinal inflammation have followed the use of ether in this manner.

On the other hand, it is worthy of note that so skilful an anæsthetizer as Dr. Dudley Buxton strongly urges its use under the circumstances that we have named, stating that its only disadvantages consist in the greater length of time required to anæsthetize the patient and the subsequent discomfort which is sometimes present. He believes that if the vapor of ether is gently passed into the rectum, the greatest care being exercised that none of the liquid itself finds entrance, the disagreeable symptoms will not frequently occur, and directs that the bottle containing the ether, to the amount of 2 to 3 ounces, should be plunged into a second vessel containing water at 120° F. The ether vessel communicates by an india-rubber tube with a glass intercepter devised to prevent the entrance of liquid ether into the rectum, and from this last is run another short tube to the anus. The usual symptoms of anæsthesia are developed generally more rapidly in children than in adults, and Buxton states that the time required varies from three minutes to thirty minutes.

Taking all things into consideration, we

think we may conclude that while etherization by the rectum is possible and, in very rare cases, permissible, that the circumstances calling for it should be very extraordinary before the surgeon should resort to this method of producing anæsthesia.

THE STATUS OF ETHER IN GERMANY.

BRUNS (*Berlin. Klin. Woch.*, No. 51, 1894), in commenting upon the steadily increasing popularity of ether in Germany,—a popularity based on statistical study which shows how much safer this agent is than chloroform,—calls attention to the fact that there is a beginning reaction in favor of the more dangerous agent on the part of a few surgeons, these men holding that, although Gurlt's statistics conclusively prove that the immediate danger of ether is many times less than that of chloroform, the remote danger is greater when ether is administered, and that from bronchopneumonia entirely due to the irritating effect of ether vapor upon the lungs patients frequently perish who would have been saved had chloroform been employed. Thus, Czerny says that he frequently saw light cases of bronchitis and emphysema after ether narcosis. These usually cleared up quickly, but sometimes ran into serious bronchitis and bronchorrhœa, and in some cases even into severe broncho-pneumonia. This last complication occurred in a number of patients who could not expectorate the mucus which accumulated in the throat because abdominal operations rendered coughing extremely painful. He states that he lost two patients on the eighth day from this cause, both these patients being entirely free from bronchitis before operation and the wound running a sterile course.

Mikulicz, after a six months' trial of ether, abandoned it, because he observed a number of light cases of bronchitis and two cases of pneumonia.

Poppert has described a case of ether death due to œdema of the lungs, and has collected six other cases in which death occurred following lung congestion after etherization. Poppert ascribes all these deaths directly to the ether, and comes to the conclusion that if statistics were collected in which all the late effects rightly belonging to this agent were included, it would be found to be twice as dangerous as chloroform.

In this relation it is interesting to note that the causative relation of ether to these deaths is by no means proved; that pneumonia is a very common sequel of belly operations, no matter what anæsthetic has been used; that acute congestion frequently occurs as the result of profound shock, often from an accident, for instance, when absolutely no anæsthetic has been employed; and that, as pointed out by Bruns, it is easy to find in the practice of those who employ chloroform exactly the same complications occurring, although they are not attributed to the effect of the drug. Moreover, it has been conclusively proved that the remote effects of chloroform are infinitely more serious than those of ether, since the former drug has been shown by Ugar, Strassmann, Ostertag, and Fraenkel to produce fatty degeneration, while ether Selbach has shown to be absolutely free from this danger; and, moreover, Wunderlich has proved that albuminuria and cylindruria are more frequently observed after chloroformization than after etherization. Bruns cites two cases of sharp bronchitis occurring after the use of chloroform which undoubtedly would have been ascribed to ether had this drug been employed.

It is quite certain that the vapor of ether is more irritating to the mucous membrane than that of chloroform, since the former agent always causes an increased secretion of mucus and saliva. When the irritation is more than a simple transitory hyperæmia, and is sufficiently intense to excite acute inflammation, it is probably due to idiosyncrasy or impurities in the ether. It has long since been shown that ether kept in the light decomposes and forms irritating products. Bruns affirms that admixture of air with the ether produces similar results, and advises, therefore, that ether should be stored in jars which are completely filled with the agent, which are firmly closed and protected from light and kept in a cool place until used. If at an operation all of the contents of the flask is not used, the remainder should not be employed for narcotizing, but only for external use. He laments the absence of a special ether for narcotizing purposes in Germany, and hopes that ultimately the work of the pharmacist shall be so directed that the surgeon can be sure of an absolutely pure product.

Fortunately, in this country Bruns's complaint finds no place, since the ether commonly employed for anæsthetizing has been repeatedly shown to be absolutely pure. Doubtless the suggestion of Bruns to have the vessel completely filled is a good one; certainly his advice to discard for anæsthetization portions of a can left over and stored for several days, or even weeks, is sound. Probably most sur-

geons have now and again made trials of cheaper ethers than the preparation which has received the endorsement of the leaders of the profession.

Speaking from personal experience, the writer is fully in accord with Bruns when he states that effects other than an ephemeral irritation of the mucous membrane are to be attributed to impurities in the drug, since with less carefully prepared preparations there is nearly always more prolonged and violent vomiting, at times serious bronchitis, and exceptionally spitting of blood or pulmonary œdema, these complications no longer developing on adoption of the standard preparation. It is apparent that though there are some individuals who have reverted to the more rapid and more pleasant chloroform, ether is steadily gaining ground in Germany, and will ultimately be as generally used as it is in England or even in the northern section of this country.

A NEW JOURNAL.

THE month of April sees issued the first number of a new medical journal which is called *Medicine*, edited by Dr. Harold N. Moyer, of Chicago. It goes without saying that under his editorial supervision the profession may expect this journalistic venture to be a success from every point of view. The journal contains about eighty pages of reading matter, which is composed of original articles, abstracts from current medical literature, and carefully written book reviews. In style and appearance it may be compared to the *American Journal of the Medical Sciences* or to the *International Medical Magazine*.

Not only is Dr. Moyer well known to many members of the profession in the East and West through his original work in clinical medicine and the prominent position which he has occupied in the American Medical Association, but, in addition to these attributes which are so necessary in an editor of a successful journal of practical medicine, he has called to his aid eight or ten collaborators from the profession in Chicago who are equally well known with himself for their ability.

We welcome the new journal to our exchange-list and speak a good word for it to our readers because of our confidence in the methods which will be employed in its publication and editorial management.

Reports on Therapeutic Progress.

ELEVEN VITAL POINTS CONCERNING PHTHISIS. WHAT CASES TO SEND TO COLORADO.

MUNN'S (of Denver) views of these questions are positive, and have been already expressed in several articles published in Eastern journals. They may, however, be more succinctly stated, as follows:

1. The cases unfavorably affected by high altitudes are only those in which the extent of lung involvement is so great that the available respiratory area cannot secure a sufficient supply of oxygen from our rare atmosphere.

2. Fibroid phthisis and bronchial irritation do not contraindicate residence in the Rocky Mountain region. Embarrassed heart action, when dependent on conditions specified in answer to (1), is a contraindication.

3. In the author's experience, high altitude does not cause nervous disturbance or physical depression in such a manner as to favor the development of more active pulmonary trouble. Headaches and neuralgias due to congestive troubles are occasionally increased in severity, but the beneficial influence of the climate upon the individual's general health will, in ninety-nine per cent. of cases, vastly overbalance this.

4. (*a*) The tendency to fever is not increased by mountain climate, and,—

(*b*) Except in extremely high altitudes,—say from ten thousand to fifteen thousand feet,—the liability to hemorrhage is not greater. When cases have reached the stage of "arrest," after some months' residence in Colorado, the writer strongly advises against return to the East to reside.

5. Permanent residence in lower and more moist regions cannot be resumed in less than five years. Even a visit East of a few weeks, after several years' residence in Colorado, may cause a fatal renewal of the disease in some instances.

6. (*a*) Practically a permanent residence in the West is necessary to the maintenance of a cure.

(*b*) In a large majority of cases that have received any benefit, a permanent cure is attained by permanent residence.

7. When cases have reached the stage of "arrest" in Colorado and have returned to Colorado, and have become again infected, they do not make as good a recovery (perhaps do not improve at all) on returning to Colorado the second time.

8. The number of months' residence in this

climate necessary to effect the change from "active" trouble to the condition of arrest might be placed at a few months in the most favorable cases, an indefinable period in others, altogether dependent upon the characteristics of the individual case.

9. Hemorrhagic cases receive most benefit from climate; also those in which the lesion is definitely limited to the apices of the lungs, and those with small cavities that drain easily and completely.

10. The practice among physicians in the East of advising pulmonary patients, who may have some heart-trouble, against coming to Colorado, is based upon ignorance of the real conditions existing here and upon the fallacious statements of text-book writers who have never visited the localities about which they presume to write.

11. Only the functional cardiac trouble dependent upon extensive pulmonary involvement is aggravated at this altitude. Other persons having cardiac disease live as comfortably and as long in Colorado as in any other region. The percentage of deaths in Denver due to diseases of the heart and to that closely allied condition, Bright's disease, is shown by the records of the Health Department of Denver to be very much smaller than the percentage due to those causes in any other city in the United States having a population exceeding one hundred thousand. The same statement is true in regard to pneumonia and bronchitis. Irresponsible writers of text-books have imagined that these diseases ought to be more prevalent and fatal here than elsewhere; from belief to assertion has been but a short step, and their erroneous statements were disseminated and have been largely accepted as correct simply because they have not been contradicted.—*Colorado Climatologist*, December 15, 1894.

TREATMENT OF PULMONARY CONSUMPTION.

Perhaps the greatest living authority—Dr. Theodore Williams, of London—contributes to the *Birmingham Medical Review* of December, 1894, a most valuable paper under this heading. It is so practically useful and interesting that we publish a considerable part of it.

Koch's brilliant discovery, while it has largely assisted diagnosis, cannot be said to have contributed much to the progress of treatment. It was the signal for an enthusiastic outburst of antiseptic or bacillicide measures. The unhappy phthisical patient was muzzled with antiseptic respirators, he was surrounded by antiseptic atmospheres, and he had to submit to what Daremberg terms "orgies of creosote and guaiacol." Antiseptics were injected hypodermically, antiseptics were administered per rectum, and all efforts short of destroying the patient were directed to slaughter the tubercle-bacillus. But it must be admitted that it is one thing to arrest the spread or development of this bacillus in a test-tube or on a cultivation-plate, and another to attack it in the tissues of the delicate human body, where, except at a few exposed surfaces, such as the mouth or throat, it is out of reach of local manipulation. Many of the antiseptics used had not even the recommendation of having been proved to be fatal to the bacillus tuberculosis, but were tried on purely theoretical grounds. But, after all, supposing these means had succeeded in destroying the bacilli then present in the lungs, what was to prevent other tubercle-bacilli in greater numbers from entering in and falling on the soil (proved to be vulnerable), then settling and multiplying, and thus rendering the last state of that patient worse than the first? There is nowadays much discussion on the contagious nature of phthisis, and the possibility of preventing much of the disease by notification and isolation; but while it is our duty to disinfect and destroy the sputum and other secretions of phthisical patients which have been proved to be sources of danger, any complete system of isolation would be quite impossible in so common a malady; and, moreover, as the evidence for its necessity is very weak indeed, it would be uncalled for and cruel.

The next event in the history of the treatment of phthisis was the employment of Koch's tuberculin injections, which turned out to be a most disastrous failure, but from which many wholesome lessons may be learnt, one of which is that any treatment which promotes not conservative, but destructive changes, as shown in the breaking down of the lung-tissue and its appearance on a large scale in the sputum, cannot be otherwise than detrimental to the patient, as the area of infection, instead of being limited, is thereby considerably widened. Another lesson is that certain morbid poisons possess a distinctly elective affinity for certain organs, and appear to select old lesions in those organs. The quickness with which the lupus spots and tuberculous lesions in the lungs become the seat of active change is very remarkable, and the rapidity with which tuber-

culous masses of long standing break down and cavities are formed is even more so.

Now, it seems to me that all these specific modes of treatment ignore one great factor,—nay, the greatest factor of all,—viz., the resisting power of the organism to disease,—and it is to this that the physician should lend his aid and support; for, if his means are effectual, he can ward off disease, or, if a patient has already been attacked, he can limit its inroads and possibly arrest it altogether. A glance at the history of the treatment of phthisis will show that whatever success has been attained has been achieved by strengthening and fortifying treatment, whether by diet, climate, or medicines, and not by so-called specific treatment. Life in the pure air, judicious exercise, a light, nourishing dietary, and such aids as cod-liver oil and tonics have effected more than all the bacillicide treatment put together. But these all act on the old principle of helping nature to help herself against her foes, and reducing the vulnerability of the patient to attack.

All experience teaches that a large quantity of oleaginous food, supplied under conditions which promote its absorption and assimilation, is the surest method, and among this class cod-liver oil is easily pre-eminent, on account of its penetrative power and the ease with which, with pancreatic juice, it forms a rich emulsion capable of absorption. It is probably this which has caused cod-liver oil to do so much good in the treatment of phthisis; and when we reflect on the number of poor phthisical patients, as seen in the out-patient departments of hospitals, who enjoy no advantages of climate, whose surroundings are the reverse of sanitary, whose food is scanty, and whose trade or occupation is by no means salubrious, who yet hold their own by steadily persevering for months and years with cod-liver oil, it must be admitted that it does in some subtle way supply the requisite nourishment and augment the resisting force of the system; the diminution of the usual phthisical symptoms and the rapid gain of weight and strength confirm this.

With regard to substitutes for cod-liver oil,—and they are legion,—none of them are comparable; but the combination of the oil with the preparations of hypophosphites and arsenic has proved very useful. The introduction of a large amount of milk into the dietary is to be aimed at. If cow's milk, however, fails, ass's and goat's milk should be tried, which are more easily assimilated; or, if these are not available, by peptonizing or preparing cow's milk, it is rendered more easy of digestion. In some cases kumiss and kefir will, for a time at any rate, supply the patient with what is required. It is a curious fact that, although wasting is the leading feature of this affection, there are few patients who so readily gain weight as phthisical subjects when secured from over-exertion and supplied with appropriate food. At the Brompton Hospital it is no rare occurrence to see patients suffering from acute and advancing tuberculous disease, characterized by high afternoon temperature, nevertheless gain weight, owing to the large amount of suitable food taken. In phthisis gain of weight is by no means incompatible with progress of the disease; all it signifies is maintenance of appetite and the avoidance of exertion. But the most important factor in the system of treatment is pure air, and on its thorough application to the system of the patient most of our success depends. Sunshine and pure air are the best bacillicides. It must not be forgotten that it was the in-door occupations, like those of milliners, dress-makers, and tailors, formerly carried on in crowded, unventilated rooms, which furnished the largest number of cases of phthisis. On the other hand, the wild tribes of the desert, living in tents, like the Arabs, are exempt from the disease; but it was noted that when these were confined in French prisons they died of phthisis at a rate of fifty per cent.

In England, though there is a great deal of talk about the virtues of fresh air, and boasting of going out in all weathers, in the case of invalids the doctrine of MacCormac and Henry Bennet is not carried out as thoroughly as it ought to be. A leaf might with advantage be taken out of the book of some of our Continental friends, and we might fearlessly trust phthisical patients to a little more open-air life than is at present done. Undoubtedly the treacherous climate of the British Isles, especially in winter and spring, is the great excuse. At most English health stations a wet or snowy day means confinement to the house, and generally to the fireside, for the whole twenty-four hours, the usual plea being the great tendency of phthisical patients to catch cold and contract fresh catarrh. When what goes on at Davos, St. Moritz, and Falkenstein is taken into consideration, the probability of catching cold, if ordinary precautions are taken, is very doubtful. At Davos and St. Moritz phthisical patients almost invariably sleep with open windows throughout the winter, when the thermometer not uncommonly registers —4° F., or 36° F. below the freezing-point, care, of course, being

taken to heat the room with stoves, to provide plenty of blankets and coverlets, and to see that the current of external air is not directed on the patient, but always first ascends to the ceiling. The universal testimony of medical men is to the effect that no harm and much good results from this practice. One effect is that patients accustom themselves to live in a lower temperature without noticing it. A talented literary friend of the writer's used to sit, sleep, and compose at Davos in a house of which the temperature did not exceed 40° F., while his healthy but unhappy guest was sitting shivering at his side. A female patient at Davos, in winter, astonished the writer by undressing with the window open, snow lying deep on the ground at the time. He closed the window, which he was informed had been open for six weeks and without harm.

But it is to the practice carried on by day at the sanitaria at Davos, Leysin, and Falkenstein that attention is specially drawn. At each of these places there are covered terraces or long sheltered corridors open on one side to the air and protected from wind, where a large number of phthisical patients, at various stages of the disease, recline on couches for the greater part of the day in all weathers. These galleries are deep and lofty, sheltered from too much sun and from rain and snow by curtains. The patients lie on well-cushioned basket-work or bamboo couches—like the Japanese ones used at the Brompton Hospital—for from seven to ten hours daily, only leaving them for meals or exercise. In the winter there is no heating apparatus, and warmth is kept up by fur clothing and abundant covering. At Falkenstein, on the slopes of the Tannus, about four hundred feet above sea-level, this seems to be sufficient, and during a recent visit Dr. Hess informed the writer that hot bottles were rarely called for; but at Davos, where the temperature falls to 15° F. below freezing-point in the shade, they are frequently needed. The galleries generally face south, and at Falkenstein, from their horse-shoe distribution, are complete sun-traps on bright days; and here the invalids recline in all weathers, for they are not allowed to sit up, it being found more difficult to keep them warm in the sitting than in the recumbent position. Several of them told the writer that they felt cold at first, but soon got accustomed to it, and what they did dread were the white mists which prevail in autumn. Besides these terraces at Falkenstein, there are a number of pavilions in the park-like gardens, some holding two or four invalids, which rotate so as always to insure protection from wind and rain. The patients seem quite at their ease, and may be seen reading, writing, knitting, playing cards and games all day. They can keep warm even at Davos, as the author can testify when he visited Dr. Turban's sanitarium on a hard frosty day in January, 1892, and purposely shook hands with a number of invalids as they lay on their couches after sunset reading their books by lamplight. Their circulation seemed to be excellent. In these sanitaria this treatment is by no means confined to incipient cases or to those with limited lesions, but is ordered even to patients in a condition of great prostration and to well-marked pyrexial cases. Dettweiler holds that the open-air treatment is the best method of treating the pyrexia of phthisis, and his plan is as follows:

After keeping a case of this kind in bed for a week under diaphoretics and antipyretics, with cold-water applications and dry rubbings, if the pyrexia does not abate, the patient is placed under the open-air treatment, and this, according to Dettweiler, has the effect of gradually reducing the fever and improving appetite and strength. The open-air treatment has been largely in vogue in Germany since the Franco-German war, when the treatment of fever and of surgical cases in tents and in more or less open sheds was found to be so satisfactory, and most of the new German and Swiss hospitals have covered balconies or galleries adjoining the wards, where the patients can be wheeled, and where they can lie in the open air for most of the day. The same is done in some English hospitals if, as at St. Thomas's Hospital, the construction admits of it.

The advantages of this treatment for those suffering from phthisis are obvious, as it means the complete application of the finest antiseptic in the world—fresh air—to the lungs and system for most of the day; but the objections are twofold. The recumbent position is not the best for expectoration, and where there are cavities and the power to expectorate is feeble there is some risk of fresh lung infection from reinhaled secretion and the formation of secondary cavities. This is met by adopting a position in which the head and shoulders are more or less raised, as is possible with most of the bamboo couches. Again, there are the want of exercise and the tendency to chilliness which such a practice involves. This is a point on which the writer differs from our German *confrères*, for, while they dwell on the importance of air, they do not attach sufficient importance to exercise, even in the initial lesions of phthisis. For the cases of consolidation or

of excavation with pyrexia exercise is undesirable and a continuously recumbent position the best, but in the cases of limited apical lesions and limited cavities without fever it is desirable for the patient to take as much exercise as his strength will permit, in order to develop and extend the healthy portions of the lung and to increase the muscular power. This, however, need not prevent the patient from spending the resting times of the day in the recumbent position in the open air. Then the difficulty of carrying out this practice in London and Birmingham and other great cities is considerable, on account of the smoke and, in winter and autumn, of the fogs; but there is no reason why it should not be tried more fully at our health resorts, like Ventnor and Bournemouth, Torquay and Hastings. The south coast sanitaria of England should, as Dr. Hermann Weber suggests, have covered terraces or balconies in which patients might lie on couches, and in the numerous villa gardens of Bournemouth and Torquay convenient rotatory shelters, capable of being turned at will to keep out wind or rain, might be erected and the verandas be more utilized.

Cough should always be treated by promoting expectoration, one of the best forms of expectorant being the effervescing carbonate of ammonium draught night and morning, which will generally clear the bronchial passages for several hours. If there be a good deal of fruitless hacking before expectoration, causing annoyance to the patient, the addition of a few minims of dilute hydrocyanic acid and half a drachm of syrup of poppy or codeine will do no harm and considerably allay the reflex irritation. Where the cavities are large, or deep, or basic, and consequently require great expiratory effort to clear, combinations of sal volatile and spirit of ether with camphor-water (as in the form of the mistura ætheris et ammoniæ of the Brompton Hospital Pharmacopœia) answer admirably, while for old or feeble persons champagne will often serve the same purpose. But the most satisfactory way to reduce the cough of chronic phthisis is by counter-irritation to the chest-wall; best by blistering. It will be found that relief will follow in proportion to the amount of serum drawn by vesication, and fly-blisters or acetum cantharidis, or the strong, but very efficient, liquor epispasticus answer the purpose. Night-sweats, when they are a mere flux from the vessels or lymphatics and not a relief of pyrexial processes, ought to be checked, and this can generally be done by arsenate of iron, $\frac{1}{60}$ to $\frac{1}{30}$ grain at bedtime, or picrotoxin, $\frac{1}{16}$ to $\frac{1}{30}$ grain, or nitrate of pilocarpine, $\frac{1}{20}$ grain, or the old-fashioned oxide of zinc in 3-grain to 5-grain doses, which generally succeed and do no harm. Preparations of belladonna and atropine, though they are effectual controllers of night-sweats, are less satisfactory, because their continuance for a long period often induces dryness of throat and mouth, dilatation of the pupils, and disturbance of sight accommodation. The treatment of pyrexia depends very much on its cause. Where it accompanies tuberculization, it probably will subside of itself when the tuberculous process quiesces, and, even if persistent, will only prevail in the afternoon. An effervescing saline, with a few drops of tincture of aconite or a few grains of quinine, is all that is then wanted. But pyrexia accompanying acute excavation, or acute excavation and tuberculization, is very troublesome and sometimes quite intractable. Antipyretics, of which there are any number, only give temporary relief, and often do harm by depressing the patient's constitutional powers and producing collapse. Williams has seen the temperature depressed from pyrexia to a subnormal reading by doses of antipyrin or phenacetin, but always with bad results, and after the use of the medicine has been omitted the temperature has risen as high as ever before.

The great object in the treatment of this form of pyrexia is to keep the patient quiet in a bed or lying on a couch, and, if possible, in the open air, *à la Dettweiler*, to feed him frequently, and to supply alcohol to repair tissue-waste, while administering only sufficient antipyretics to keep the temperature within moderate bounds. Quinine in small doses in effervescence before the rise or during the rise of temperature will often suffice, or Heim's well-known pill twice a day. Any one who studies the phenomena of fever knows that temperature rise is only a small portion of the process, and that by lowering the chart we do not get rid of the factors of heat production or of the wear and tear of the tissues, and so our best line is rather to keep up strength and weight by a frequent supply of food. The diarrhœa which accompanies tuberculous ulceration may be checked by sulphate of copper and opium if the ulcerative process be limited in extent, but if there is much ulceration, and it is the ileum and large intestine which are involved, injections are best. The enema opii of the British Pharmacopœia is excellent under these conditions; but he has seen a few of the most obstinate cases yield to large injections of linseed tea, which has a most soothing influence on the irritable ulcers.

HOW LONG SHALL PHTHISICAL PATIENTS REMAIN IN COLORADO?

HALL states in the *Colorado Climatologist* that there is a crying necessity of again calling the attention of the profession to the error of stating to a patient with tuberculosis that he has merely a little "bronchial trouble," and that he will recover in a few months in Colorado. It is an exceedingly disagreeable task, no doubt, to tell a patient that he has consumption,—much harder than to apply, in a general way, the term "bronchial trouble," which, like rheumatism, covers a multitude of pathological conditions. But the physician who does this thing does injustice to three parties: first, to himself, as the patient, sooner or later learning the truth, is likely to feel that his family physician either failed to make a correct diagnosis or acted dishonestly; secondly, to the patient, who, believing that the matter is of little moment, fails to take promptly those measures which should always be resorted to in the face of so serious a disease; thirdly, to the physician in Colorado, who, new in the patient's confidence, is at times unable to overcome the idea of the patient, derived from his family physician, that he has only a little catarrh, which will disappear in a few weeks, whether treated or not, possibly, in this climate.

If the patient had been told in the beginning that he had a serious disease, he would have taken more kindly to the advice given him here, and also decided to remain as long as necessary with a much better grace.

Many of these patients return to the East after a few months, to break down again, and returning, often fail to regain what has been thrown away so lightly. Many lives are sacrificed annually because of such mistakes.

TREATMENT OF ACUTE LARYNGEAL STENOSIS.

In the *British Medical Journal* for December 29, 1894, NORTHROP, of New York, opens a discussion under this title. He says by "acute laryngeal stenosis" he assumes in this paper that we have to do with diphtheria, true or false, involving the larynx in children. Concerning its treatment we shall emphasize two methods—a medicinal and an operative—at present in favor in New York,—namely, calomel fumigation and intubation. What medicinal treatment have we to recommend beyond steaming, vomicants, etc., to determine a favorable course in laryngeal diphtheria, to relieve by milder methods the urgent symptoms? Our answer is, Calomel fumigation. This method was first publicly advocated by Dr. J. C. Corbin, of Brooklyn, in 1881, was later taken up by Dr. O'Dwyer in New York, and has steadily gained in favor. It is believed that by all former methods of treatment without operation about ten per cent. of pseudo-membranous laryngitis recover (J. L. Smith and O'Dwyer).

Statistics have not accumulated sufficiently to frame a strong argument in regard to calomel fumigation, but the conviction of those best capable of judging is positively favorable. In two hundred and seventy-five cases of "true croup" collected by McNaughton and Maddren, 48.7 per cent. recovered, the only treatment being calomel fumigation ("sublimations"). Again, this medicinal treatment is advised after operative procedure has been required, and here its advocates are equally positive that it acts favorably. Dr. Brown gives four hundred and eighty-three cases of laryngeal diphtheria treated without calomel fumigations, with 35.4 per cent. recoveries; two hundred and fifty cases with calomel fumigations, with 47.5 per cent. recoveries. It goes without saying that a child who tides past the urgent symptoms on fumigation without operation and without wearing an intubation-tube — other things being equal—makes the better and speedier recovery.

A tent or canopy is rigged about the top of a crib in any way most convenient. A sheet is thrown over supports and allowed to fall about the four sides of the crib. The supports may he upright sticks lashed to the four corners of the crib, or a line stretched between two uprights at diagonally opposite corners, or a step-ladder placed astride the middle of the crib, or any other extemporized frame suggested at the time by the ingenuity of the persons in charge. The main point is to have a fairly large and fairly tight enclosure. In such a tent the child lies undisturbed; if sleeping, so much the better. The crib tent is in use in the Willard Parker Hospital, New York. It contains about fifty cubic feet of air.

The apparatus for furnishing fumes must first of all be safe from upsetting and the danger of fire. Such a one is easily extemporized in the following manner: select some deep vessel, a washbowl, saucepan, or *pot de chambre;* place in this an alcohol-lamp; lay across the top a tin strip of any kind, and over the spot where the flame of the alcohol-lamp touches the under side of the tin make a little compact pile of the requisite amount of calomel for a single fumigation.

A special lamp has been constructed by Geo. Ermold, the instrument-maker. This can be hung up by wire, or can stand on a plate or in a pan, as desired. As to the child, fumigation is often given while it sleeps, and it needs no preparation. Ordinarily eight to ten minutes are required to volatilize the calomel, and the tent should be kept closed about fifteen minutes. A very safe and satisfactory method in severe cases is to volatilize in an ordinary crib tent fifteen grains every two hours for two days and nights, then prolonging the intervals to three hours on the third day, four hours on the fourth day, fumigating three times a day thereafter, according to indications (O'Dwyer). Attendants become easily salivated from inhaling calomel fumes, and must be cautioned. The room should be thoroughly aired after opening a tent. It is well when circumstances permit to fumigate in a separate room, removing the child and attendants to a fresh room while the other is freely aired.

Now, what effect has fumigation upon the patient, the child? It does not suffer ptyalism. Occasionally, older children especially, after days of treatment, have a mild stomatitis, sometimes diarrhœa. If the calomel is impure, there may be conjunctival irritation. Chemically pure calomel is essential. After prolonged use there is more or less anæmia. This must be combated by administration of iron, and if there is associated prostration, a little whiskey may be required before fumigation.

The above directions are quite in the line of moderation. Many physicians vaporize twenty to forty or even sixty grains, and make the intervals in urgent cases no more than half an hour at first. Such practice is considered safe and justifiable, but symptoms of prostration and anæmia are likely to appear after a few days. It is a desperate disease and warrants heroic treatment.

The author is not one who urges calomel fumigations in all diphtheria cases as a prophylactic, nor one of those who think they know how it acts; but he is one of the number who believes it affords relief from the urgent symptoms many times when no other medication will, and helps the patient to survive the stress without operative procedure. To this intent he employs it, to this extent he recommends it.

PHTHISIS.

SOLLY points out, in the *Colorado Climatologist* for December 15, 1894, that formerly our practice was, in almost all grave affections of a vital organ attended with more or less inflammation, to give rest, procured by opiates or quiet. Now the pendulum of medical opinion swings the other way. We try and stir up the healthy life of the organ, and generally actively increase, while regulating, its functions. The old treatment of phthisis—by cough opiates, by physical rest, and by sedative climates—is now discarded. Some have adopted instead what may be termed negatively beneficial climates, where the elevation and general change of climate are not sufficient to stir up any great functional excitement, but where certain bad elements in the patient's home weather are eliminated, and where they can enjoy more of out-door life; while the more radical advocate treatment in such countries as Colorado, where, even when the body is at rest from locomotion, increased functional activity is still continuously produced.

Some demand for their patient elevation, dryness, equability, and freedom from dust combined. If by equability is meant equability of temperature, they cannot get the combination. Warm days and cool nights, hot sunshine and cool shade, are, as a study of meteorology will show, necessary ingredients in all elevated climates. If equability as regards wind is meant, shelter from excessive wind can be procured in special nooks; but there is, for very evident reasons, a constant movement of air, although often gentle, at all high places. An absence of dust is also difficult to procure at an altitude, unless in the summer the ground is kept moistened by showers and in the winter covered by snow, as the soil in all places where consumptives should be is dry and light, and therefore easily raised even by light winds. There are, however, places where pine woods and the immediate neighborhood of hills give shelter from the most frequent winds. With this shelter and comparative stillness of air there are drawbacks, and in the case of each invalid it is necessary to take a choice of evil as well as good.

Colorado Springs, though sheltered from the worst storms, is exposed to an almost constant movement of air, and, the soil being dry and light, dust is raised during high winds; while in places sheltered by hills and pine woods there is a certain shortening of the hours of sunshine, often a drawback in winter, and a loss of the advantage of a more constant change of the air in keeping it pure, and of the stimulating and revivifying effects of moderate winds. The proximity of hills and woods, too, renders evaporation slower and, by confining it, prolongs the damp influences of rain

and snow. So that, though both are tonics, the more exposed air is the greater of the two, although it may be too strong for a given case.

Space does not permit the writer to give more than a few opinions as results of his experience.

The most marked benefit is shown in antagonizing and arresting tuberculosis in those whose ancestry or physique, or both, convey the impression of their being affected with general tuberculosis.

Hemorrhagic cases are found to do well.

Phthisis consequent upon croupous pneumonia, or pleurisy, is generally benefited.

The presence of a cavity is not, in itself alone, a bar to coming and receiving good.

Fibroid phthisis is usually improved.

Cases of so-called catarrhal pneumonia generally do well, but where there is a marked tendency to acute febrile catarrhs of the tubes, or a specially irritable and useless cough, a more medium climate is indicated.

Rapid progress and pyrexia are not contraindications, if there is evidence of a sufficiency of healthy lung remaining, and if the patient is able to take and assimilate enough food, and shows a fair power of reacting to stimulation by cold and a capacity towards recuperation from fatigue.

Very moderate dilatation of the heart in the young is not a positive preventive, if care is exercised; nor is old valvular disease, if tolerant with and compensated for.

Albuminuria caused by lardaceous disease would be a decided contraindication. Any renal complication makes the experiment of change to Colorado extremely risky for precipitating the end, though chronic Bright's disease, without pulmonary disease also, is usually favorably influenced.

Chronic catarrh and inflammation of the throat, nose, or bronchi are generally improved, and even tubercular laryngitis is, *per se*, not contraindicated.

To sum up, as regards the individual, the anæmic and phlegmatic are best influenced as regards the disease; the chronic, as regards the stage of disease.

A larger margin of sound tissue in the peccant organ is demanded than in changing to a less extreme climate, and a certain evidence of vital resiliency is imperative.

With respect to pulmonary disease, it should be especially remembered that in sending your patients to Colorado you are putting them, as it were, in a gymnasium, and they will need prudence and instruction to benefit by it; that the whole principle of the influence of altitude upon chronic disease is the exciting of a healthy life in the place of the unhealthy, and that in the process there comes the strain of the battle; that in prescribing an altitude, to insure success, as in prescribing the most powerful remedies from the Pharmacopœia, the method of administration demands our most careful consideration.

Taking the medical profession throughout the world, it is unquestionable that a large majority of those who have made a study of the subject believe that where a change is made, a change to an elevated country is the most likely to benefit a consumptive.

The population of Colorado, which grows rapidly, is evidence of its general merits as a resort for consumptives, and this especially applies to Colorado Springs, the healthiest, most agreeable, and accessible town in that country. There are places that are warmer or more sheltered, better suited for some. There are places that are lower or higher, better suited for others. For an average case of phthisis, however, this resort contains a greater number of advantages, both climatic and general, for residence, taking the year round, than any other now accessible.

To build up statistics of cases to prove the merits of Colorado Springs might not be difficult, but they would be misleading. A number of cases come only to die. A good climate being like a good doctor's practice, there is a mortality among his patients out of proportion to his skill, because he is the resort of the desperate; and, again, there is no country where the invalid fool is more surely and quickly punished for his neglect of good advice.

INSANITY PRODUCED BY THE ABUSE OF GANGA (INDIAN HEMP).

Cases of toxic insanity due to hemp drugs appear to be rarely fatal, and as regards the general appearance of the various organs of the body, and especially with regard to coarse lesions of the brain, these cases show nothing which could be ascribed to the action of ganga more than to other causes present. It is probable that as the insanity produced by ganga is never very prolonged, the hyperæmia occurring during the stage of excitement leaves no permanent mark on the brain-tissue or membranes.

In conclusion, the writer believes that hemp drugs are largely used in Bengal, smoked as ganga and churrus, drunk as bhang and siddhi,

or eaten as majum. The smoking of churrus and the eating of majum are not very common.

Among healthy persons ganga smoked alone, with tobacco, or with a very small addition of datura (two or three seeds), produces a condition varying from mild exhilaration to marked intoxication. The violent intoxicating effects are less marked, or not seen at all, in persons having a regular and wholesome supply of food. Much the same may be said of bhang, etc.

Among persons of weak mind, or with a marked neurotic tendency, even a moderate quantity, or only a slight excess of hemp drugs, may so increase the insanity, evident or latent, as to make such persons violent, morose, or melancholy, according to the neuropathy with which we start. The presence of adulterations such as datura will increase these effects.

Abuse of hemp drugs, especially when adulterated with datura, will produce, even in healthy persons, a very violent intoxication simulating mania, or may lead to a morose, melancholic condition, or to dementia. These conditions are generally of short duration, and the patient ultimately recovers. So common is absolute recovery that the writer thinks that when a patient confined in an asylum for the treatment of insanity, said to be due to the abuse of hemp drugs, does not recover within ten months, these drugs were possibly only the exciting cause, and we are dealing with an individual who was either insane previous to his use of intoxicating drugs, or with one in whom latent insanity has been roused into activity by the vitiating effects of ganga, bhang, etc.—TULL-WALSH, in *Indian Medical Gazette* for December, 1894.

WHAT CASES OF PHTHISIS ARE CURED BY COLORADO CLIMATE? IS PERMANENT RESIDENCE NECESSARY?

Regarding Colorado climate as a cure for tuberculosis, experience has given WAXHAM many fixed and positive opinions. He does not believe that this climate and altitude are suitable for all cases of consumption, but that a great many recover here who would otherwise have filled untimely graves has been so frequently demonstrated as to require no argument.

The cases that are especially unfavorably affected by this climate are those in the later stages. The dyspnœa is increased, the ability to take exercise diminished, and the heart's action increased. This, added to the disappointment and the absence from friends and home comforts, renders life miserable and the unfavorable result certain and speedy. Colorado climate is worse than useless where a large area of lung tissue is involved in the tubercular process, where there are profuse night-sweats, rapid heart action, elevated temperature, with emaciation and prostration. Patients so affected are much better at home, but, if sent away, should be sent to a mild climate and a low altitude. He believes that fibroid cases with bronchitis and embarrassed heart action are unfavorable, but with proper care in regard to exercise, and with the aid of heart tonics, they will undoubtedly do quite as well here as anywhere, except in the later stages. A word of caution is necessary in relation to exercise. Frequently patients are advised to walk, to ride horseback, to climb the hills; in fact, to take all the out-door exercise possible and to take little or no medicine. It must be remembered that, to one even in good health, exercise at an altitude of from five thousand to seven thousand feet is much more exhausting than at the sea-level, until one has become acclimated or accustomed to it. To one in feeble health great and sometimes permanent injury is done by too great exercise on first coming to this altitude. They should be advised to rest and to take exercise gradually. Frequently digitalis is required in addition. Fresh, uncontaminated air is of the utmost importance, and those do better who can even sleep in tents, and yet too much care cannot be taken in regard to exercise, especially for the first few weeks.

He has not seen nervous cases aggravated by Denver climate, but it is probably true that very high altitudes, as at Leadville (ten thousand feet), Georgetown (nine thousand), and the like, are not at all suitable for nervous cases or those affected with mitral insufficiency or other diseases of the heart. He states that he should hardly feel justified in sending such cases to an altitude of over six thousand feet. He does not believe that this climate in itself increases the tendency to fever, but has often seen fevers induced by injudicious exercise that would not otherwise have developed. The tendency to hemorrhage is not increased, but, on the contrary, is diminished, and we look upon the hemorrhagic cases as the most favorable if not too far advanced.

Cases of tuberculosis should not come to Colorado for six, eight, or ten months, but from three to five years. Permanent residence in Colorado is not absolutely necessary after this time, provided all symptoms have disappeared, but it is better and safer to do so. Relapsing cases are unfavorable, and hence a

patient should not be allowed to return too soon. As a rule, it requires from one to two years for active cases to pass into the stage of "arrest." Cases complicated with diseases of the heart need not be debarred from going to Colorado, provided care is observed in regard to exercise, if heart tonics are taken until the patient has become acclimated, and especially if the lower altitudes of Colorado are selected. —*Colorado Climatologist*, December 15, 1894.

THE EFFECT OF THE LOCAL APPLICATION OF GUAIACOL IN THE REDUCTION OF THE TEMPERATURE IN TYPHOID FEVER.

McCormick has written a paper on this subject, and, in summing up the article, says he is convinced of the following facts:

1. That guaiacol when locally applied is certain to reduce temperature.

2. That with the care that a physician should always use in the administration of drugs, it is absolutely safe.

3. That chills will not occur if the temperature is not reduced below 100° F.

4. That no deleterious effect is produced upon any of the organs by its use.

5. That it is easy to apply, and can be used by any one competent to nurse a typhoid fever case.

6. There are no depressing effects following an intelligent use of the drug.

7. That by continued use the dose can be gradually lessened.

8. That it is far superior to the cold bath; that it can be used by one person; that no appliances are necessary for its use that are not obtainable in every home; that it is much more pleasant to the patient; that it is fully as effective; that patients are not subjected to the danger of moving, and they offer no resistance to its use.

McCormick has thoroughly tried the bath and cold packs, and knows that they have proved very efficacious in many cases, but with his experience with guaiacol has no desire to return to either of them.—*Medical News*, January 19, 1895.

SOME NEW DRUGS.

Von Ziemssen (*Münch. Med. Woch.*, December 11, 1894) says of lactophenin that his experiences are not yet sufficient to confirm the favorable reports of Von Jaksch and Jaquet. It is really a lactophenacetin, and the dose is the same as that of phenacetin. In the author's clinic many investigations have been made with ferratin. It was found to be a good iron preparation, easily taken and digested, but it should be given in larger doses than recommended by Schmiedeberg. The author thinks that, as a substitute for digitalis, strophanthin is a more reliable preparation than the tincture of strophanthus. Digitalis should be given in the powder or infusion preferably to the uncertain tincture. Von Ziemssen discusses the use of clysters containing sodic salicylate (2 to 3 grammes to 15 to 20 grammes of hot water) in those unable to take the salicylates by the mouth. The absorption is nearly as efficient as by the stomach. This also applies to preparations of squills. The use of salicylates in ointment over painful joints is a useful addition to such ointment. Ebstein's aleuronat bread is a valuable substitute for amylum bread in diabetes. Von Ziemssen strongly emphasizes the value of freshly prepared meat juice as against some of the prepared meat juices in very general use.—*British Medical Journal*, January 5, 1895.

FURUNCULOSIS OF THE EXTERNAL AUDITORY CANAL.

MacCuen Smith writes in the *Medical News* of January 19, 1895, that the treatment generally accepted for furuncle is very simple, and consists in an incision through the boil, dividing the periosteum down to the bone. This procedure, however, is usually more applicable to boils that are well advanced. Our treatment will serve a much better purpose if the case is diagnosticated at an early period, when an attempt can be made to abort the incipient boil. We know that many inflammatory processes might be aborted or limited in their destructive action if they could be subjected to local antiseptics that were not only powerful germicides, but at the same time non-poisonous and non-irritant. In the compound known as camphor-phenol, which is composed of fifty-five per cent. of camphor and forty-five per cent. of carbolic acid, we have a preparation that meets the requirements, and hence becomes at once a valuable addition to our local therapeutics. In compounding this preparation we must insist that the drugs be chemically pure, otherwise the crude elements of the carbolic acid, or the impurities present, will be markedly irritating. It has been the writer's custom to employ this combination in its full strength.

The use of this preparation, when applied locally for the alleviation or cure of furunculo-

sis of the external auditory meatus, is founded upon its inhibitory action on the development of the staphylococcus pyogenes aureus, and incidentally on its marked anæsthetic properties. Granting this hypothesis to be correct, it is only proper to expect that this solution of camphor and carbolic acid will not only shorten the disease if seen early, but should also lessen the suffering and limit the course of a case well advanced.

From a practical knowledge obtained by an experience of more than eight years in the employment of this preparation, Smith feels justified in offering the claims stated as reasonably correct. Many cases of incipient furunculosis can be successfully aborted by introducing a cotton tampon saturated with carbolized camphor into the meatus. Even when the furuncle has so far advanced that an incision becomes necessary, the pain incident thereto can be greatly lessened by previously introducing a similar tampon, a few minutes only being required for more or less complete anæsthesia to take place. Likewise, after the boil has been opened, the pain will be almost immediately relieved by the introduction of a piece of cotton-wool saturated with this solution. In the latter case, however, the tampon should be large enough to fill the circumference of the meatus and extend well beyond the boil, as the pressure exerted by the cotton assists in promoting rapid absorption, and thereby facilitates quick recovery. Before each tampon is introduced, the canal should be carefully mopped out with alcohol, as this is our most efficient means of clearing the meatus of all *débris*, and the alcohol, moreover, is an excellent antiseptic. It may be necessary to apply a fresh tampon of camphor-phenol every day until five or six have been introduced, but two or three are usually quite sufficient to destroy all disease germs. An ointment of yellow mercurous oxide (½ grain to 1 drachm) can be substituted for the camphorated phenol as soon as the inflammation begins to show marked signs of subsiding.

In advocating this line of treatment it should not be understood that by so doing we should exclude other therapeutic measures of more or less value. In selected cases bloodletting or blistering in front of the tragus is of undoubted service, and hot antiseptic irrigation of the meatus should be employed when indicated. Dry cold is also of value in the treatment of inflammatory affections of the external and middle ear. The use of poultices is mentioned only for the purpose of discouraging their use. The single benefit that could arise from the employment of hot poultices is the questionable good that may result by promoting suppuration. In so doing, however, one creates a fertile hot-bed for the rapid multiplication of bacteria, and frequently excites an inflammation of the auricle. Moreover, the few cases of middle-ear disease that the writer has seen occur as an extension from the inflamed meatus have invariably resulted after frequent poulticing had been practised.

In debilitated subjects the general health should receive due consideration. The administration of selected tonics and those drugs known as alteratives, in conjunction with proper hygienic surroundings, will do much to effect the cure of an existing boil, and especially to prevent its recurrence. For this reason arsenic is employed in the form of Fowler's solution, given in increasing doses until the physiologic effects are produced. The administration of calcium sulphide, although popular for a time, has, on the whole, been disappointing, in his experience.

In conclusion, the aural furuncle is both infectious and contagious, with a tendency to recurrence from auto-inoculation, and occasionally it manifests itself epidermically. Smith has met with no case in which there was a recurrence of the furuncle where the canal was kept strictly antiseptic.

To summarize briefly the treatment of furunculosis of the external auditory canal:

1. As antiphlogistic measures, use the leech or blister in front of the tragus, and hot antiseptic irrigation when indicated. Avoid the use of poultices.

2. As local applications, cleanse the canal with alcohol and insert an ample tampon of cotton-wool saturated with camphor-phenol, renewing this every twenty-four hours, or oftener if required. This is at once antiseptic and analgesic.

3. As constitutional remedies, give tonics and alteratives, with the especial recommendation of arsenic in the form of Fowler's solution. This should be administered in increasing doses until its physiologic action is obtained.

4. As an operative procedure, make a free incision through the boil and divide the periosteum down to the bone. This will prove necessary in well-advanced and chronic cases, especially when pus has already formed.

TRIONAL.

VENANZIO, in a pamphlet published in 1894, remarks that trional is in every sense an hypnotic. It has no action on the pulse, respiration,

reflexes, etc. It is superior to most of the other hypnotics, even having advantages over sulphonal and tetronal, but it stands, according to the author, below chloral, which is the sovereign hypnotic. It is not to be compared, of course, with duboisin, which is a most powerful sedative rather than an hypnotic. The author gives trional in honey, mental patients taking it well in this way. He usually gives 1 gramme, but sometimes 1½ to 2 grammes. It begins to act in a few minutes, and eventually undisturbed sleep supervenes. No headache or other unpleasant symptoms are noted after it. Trional is most useful in the insomnia of neurasthenics accompanied by depression. In some cases of excitement it is also useful.—*British Medical Journal*, January 5, 1895.

TREATMENT OF TRUE DIPHTHERIA.

BERG, in the *Medical Record* for January 12, 1895, speaks of his experiences in the treatment of diphtheria, and first tells how he determined the question of the advisability of using antiseptic and germicidal agents in the irrigating solutions for the throat and nose. At the Willard Parker Hospital a series of cases were subjected to local irrigation with warm salt solutions every one to three hours; a second series were subjected to this treatment, and, in addition, were sprayed every three hours with peroxide of hydrogen, in the shape of pyrozone, recommended by Dr. Northrup, varying in strength from five to twenty-five per cent., according to the severity of the case; and a third series of cases were subjected to irrigation by a 1 to 3000 or 4000 solution of the bichloride of mercury.

It was found that while the average number of days in which membrane persisted in the throats of those treated by salt-water irrigation was only six to nine days, under bichloride irrigation the average duration was seven to nine days, while with salt water and pyrozone it was nine to sixteen days. The bacilli, however, persisted in the salt-water cases for 10.2 days, while in the bichloride cases they disappeared seven days after the disappearance of the membrane, and in the pyrozone and salt-water cases 9.6 days. It would appear, therefore, that a mechanical washing away of the diphtheritic products is best accomplished by the warm salt-water irrigation, probably because, being harmless, it can be used in much larger quantities than a germicidal solution, such as the mercurial sublimate; but the bacilli and probably, what is more important, the toxic products disappear most rapidly under a bland germicide like corrosive sublimate, or, what is equally good, a solution of boracic acid 1 to 30, or a tablespoonful to a pint of water. The latter solution he uses without salt water, it being sufficiently mild to use in large quantities. If the mercuric bichloride is preferred on account of its stronger germicidal action, the salt solution should be used for the mechanical work of thoroughly irrigating the throat and nose, and this should be followed by the solution of mercuric bichloride. Of course, when the latter is used, should symptoms of mercurial poisoning occur, then the bichloride should be stopped and the boracic acid substituted.

As to the frequency with which irrigation should be done, this varies with the severity of the case. When the nose and throat fill up rapidly with the secretions, the irrigation should be at shorter intervals, until the improvement in the amount of discharges renders less frequent irrigation equally effective. We must not forget that irrigations, even if properly performed, are accompanied by more or less disturbance, and sometimes even violent resistance on the part of the patient, and that the strength of the patient is thus apt to become exhausted. It is of the utmost importance, therefore, if we would husband the vital energies of the patient and avoid heart-failure, which is one of the chief dangers of diphtheria, that these irrigations be performed at intervals sufficiently far apart not to weaken the patient and yet sufficiently often to keep the nose and pharynx properly cleaned. Rarely is it necessary to subject the patients to irrigation more frequently than once in two hours, generally only once in three hours, both nose and throat being irrigated. As to how these irrigations should be done, the method that disturbs the patient the least should be the one selected; that consists in the use of the fountain syringe. The patient, if a child, should be wrapped in a sheet so as to pinion the arms, and then placed recumbent on the side upon a table or bed, a rubber sheet passing from the patient to a receptacle on the floor; the syringe is hung several feet above the level of the patient, and the nozzle, with a single opening, passed gently into the upper nostril as the patient lies on the side, parallel to the floor of the nasal cavity. The solution will wash out the nasal cavity and naso-pharynx and pass out through the lower nostril and through the mouth; the stream should be controlled so as to irritate the patient as little as possible. The lower nostril is then irrigated; then, the patient remaining in the same position, and a large nozzle having been substituted,—generally the large rectal tube that goes with the

syringe,—the throat and mouth are irrigated, care being taken that the nozzle of the syringe is inserted well over the dorsum of the tongue, so that the solution may reach the pharynx.

The advantages of this form of douching are, first, the patient is recumbent, and thus the strength is not wasted; second, sufficiently large quantities of solution can be used without such interruption as is necessitated by the piston syringe; third, far less violence is necessary than in the use of the piston syringe; fourth, this irrigation can be accomplished with the least assistance, one nurse being generally sufficient to manage the tube and patient; fifth, there is the minimum of chance of washing bacilli into the larynx in cases in which the larynx is not previously affected. Occasionally, where the plugs in the nose and posterior nares are so thick and firmly adherent that this douching does not dislodge them, the force of a piston syringe with a soft rubber tip, so as not to injure the mucous membrane of the nose, may be employed; finally, and this is rarely necessary, a long probe, carefully guarded with cotton, may be passed through the nostrils, to be immediately followed by irrigation, which generally clears out the nostrils and keeps them open for the future. Swabbing, pencilling, and scraping the throat and nose are not only useless, but are actually excessively injurious, owing to the abrasions which result upon the mucous membranes, each of these abrasions becoming immediately infected and diphtheritic.

Occasionally the author has blown small quantities of iodoform into the pharynx in cases where the appearance of the throat was extremely septic in character. No symptoms of iodoform-poisoning have resulted. Peroxide of hydrogen he uses in weak and strong solution, often the commercial solution of sixteen to seventeen per cent. by volume, pure; he has employed it as a spray, and injected it with a glass syringe both in the throat and nose, and while theoretically the germicidal action of the peroxide of hydrogen should render it extremely useful in this disease, he has not found that the cases in which he used it have done satisfactorily; the reason is that the preparation is extremely irritant, causing inflammation in the mucous membrane with which it comes in contact, when in strong solution, and this inflamed mucous membrane is apt to become diphtheritic. The weaker solutions, although non-irritant, are not strong enough to be germicidal nor bland enough for the mechanical washing effect. In the *Deutsche Medicinische Wochenschrift* of October 18, 1894, Loeffler makes enthusiastic claims for the following treatment: He reports seventy-one patients treated in private practice by this new method, with seventy-one recoveries, all these cases having begun treatment early in the disease. Of thirty patients seen in hospital practice, five died. All of these were seen in the second stage of the disease. The treatment is entirely local, and has for its object the destruction of the bacilli before their toxic products have been absorbed into the circulation. He applied to the diphtheritic mucous membrane of the pharynx or nose, as the case may be, the following solution: alcohol, 60 volumes; toluol, 36 volumes; liq. ferri sesquichloridi, 4 volumes.

To alleviate the pain which the application of such a solution to the throat entails he adds twenty volumes of menthol. He finds that this solution, when brought in contact with thick culture layers of bacilli in the laboratory, kills them in five seconds. The method of application consists in cleaning the affected mucous membrane with pledgets of cotton, then applying similar pledgets, thoroughly saturated with the solution, against the affected areas for the space of ten seconds. This should be repeated about every three hours at first, until the pulse becomes slower and the temperature falls; then only three times daily until membrane and bacilli disappear.

One of the most important local applications of a vaporized remedy in croup is the inhalation of the fumes of burning calomel. That mercury, when given internally in diphtheria, and particularly in diphtheritic croup, is of the greatest value, an experience extending over seven or eight years has convinced the author; and it appears that the beneficial effects of the inhalation of calomel fumes in cases of diphtheritic croup depends to a great extent upon the constitutional action of the mercurial vapor absorbed by the mouth, throat, and lungs.

The calomel should be burned under a tent formed over the bed of the patient. The tent should be as complete as possible and not too large, so as not to require too much calomel for fumigation. The calomel should be sublimed upon a tin plate over an alcohol lamp. The quantity that should be burned is about ten grains every two or three hours, depending upon the severity of the dyspnœa, until the patient is relieved. Here, as from the internal administration of mercury, constitutional effects, such as diarrhœa, salivation, etc., should be looked for, and the procedure guided accordingly. Salivation, however, is very rare in

young children. The tent over the cot of these little croup patients is an important factor in the local treatment of croup, for even steam inhalations can only be done effectively if the patient is made to breathe the air of a confined space filled with steam.

It is hardly within the province of this paper to discuss the method of the performance of intubation and tracheotomy. A few important points in the management of intubation cases cannot be too often repeated: 1. The best tubes are those most recently manufactured, with the bulbous ends. 2. In inserting the tube the gag should be placed well back between the last molar teeth. 3. The tube should be thoroughly sterilized before being inserted by dipping in boiling water. Frequently the extension of the disease below the level of the tube is due to the use of a dirty tube. 4. Liquids should be fed the patients in small quantities, the patient lying on the back on the lap of the nurse, with the head thrown back, thus bringing the back of the pharynx on a lower level than the larynx. 5. If the baby be a nursing baby it should be fed in that way even when intubated. In older children, where, in spite of all efforts, neither food nor drink can be swallowed, the tube should be removed every second day, sometimes even every day, the patient fed, and then the tube replaced; this, however, is very rarely necessary. Ice is ordered for the thirst instead of water; ice-cream, condensed milk mixed with ordinary milk in equal parts, thick broth, the yolk of eggs,—these are the chief articles of diet while the tube is *in situ*. Before extracting the tube the blades of the extractor should be examined to see that they are firm. The patient should be kept under a tent filled with warm steam while the tube is in the larynx.

TREATMENT OF LUPUS.

SCHUTZ (*Arch. f. Dermat. u. Syph.*, xxvi., I., 1894) treats lupus vulgaris as follows: After the administration of chloroform all the friable tissue is scraped away with the sharp spoon; then the floor of the wound and the borders to a distance of one centimetre are scarified. When the bleeding has been stopped, the wound is dabbed over several times with a cold saturated alcoholic solution of chloride of zinc, to which a little hydrochloric acid has been added. During the ensuing six hours sharp pain is felt, which may be mitigated by the application of iced compresses. Before twelve hours have passed, local swelling comes on, with œdema, more or less pronounced, of the neighboring parts. Compresses of boric acid disperse this œdema in thirty-six hours and cleanse the wound. For four days afterwards a dressing of pyrogallic acid (1 in 4) in vaseline is applied three times a day; then boric acid compresses, frequently changed, are substituted for this dressing. After five days of these compresses, the dressing of pyrogallic acid in vaseline is again resorted to and continued for four days; then boric compresses are applied again for three days; lastly, a final application of pyrogallic acid and vaseline is made for two to three days. Cicatrization is rapidly obtained by the use of iodoform in powder or of boracic acid in vaseline. The duration of treatment is from two and a half to three months, and an excellent-looking scar is the result. Recurrence may take place at one or two points. If so, the nodules must be scraped away with the sharp spoon and chloride of zinc applied. The author claims that the results of this treatment are more satisfactory than those of any other plan known to him. The treatment is applicable to lupus of the skin; for that of mucous membrane in readily accessible situations, such as the gums and the uvula, Schutz recommends applications of a watery solution (twenty to thirty per cent.) of chloride of zinc.—*British Medical Journal*, January 5, 1895.

BLOODLETTING IN OVER-DISTENTION OF THE RIGHT HEART.

J. E. ATKINSON, of Baltimore, writes an article for the *Maryland Medical Journal* of December 29, 1894, with this title.

It is not the purpose of the author to inquire here whether we of the present have not been in error in almost completely rejecting the accumulated experience of generations of trained men. It may be that in our nearly universal abandonment of the lancet in inflammatory diseases we have neglected a valuable therapeutic measure. In the present instance the author calls attention to a phase of bloodletting in which it is of the highest, at times of life-saving, usefulness,—that is, the mechanical relief to be afforded by the abstraction of blood in cases where the right side of the heart becomes engorged and over-distended in consequence of increased obstruction to the flow of blood through the lungs or left side of the heart, a condition not rarely observed in intense bronchitis, especially when complicating emphysema, in pulmonary œdema, and in in-

competence of the mitral valve or stenosis of the mitral orifice.

It is not suggested, however, that all cases of this character are to be benefited by this procedure. In ordinary mitral disease, for example, as hypertrophy gradually yields to dilatation and degeneration of the cardiac muscle, engorgement and dilatation of the right heart inevitably ensue, and sooner or later become extreme. In such cases venesection may entirely fail to afford relief, because the weakened and degenerated ventricular wall will have become quite incompetent to avail itself of the assistance offered it.

The conditions are quite different, however, when a dilated and weakened, though still competent, right ventricle becomes over-distended by a sudden increase in the resistance to its systole, through a rapidly developing intense bronchitis in an emphysematous patient, or an onset of pulmonary œdema or a violent overtaxing of the powers of the left ventricle. Here the right ventricle becomes within a short time greatly over-distended and quite incompetent to overcome the resistance in front so as to empty its chamber. Its suddenly developed feebleness is out of proportion to that of the other ventricle. The blood-supply to the arteries is diminished, while the whole venous system becomes surcharged with blood. Characteristic symptoms quickly appear. The ventricular systole becomes enormously increased in frequency, but diminished in force. Arterial anæmia is shown by the frequent, compressible, unequal, and irregular pulse, venous hyperæmia by cyanosis, hepatic engorgement, dyspnœa, sweating, etc.

If relief is not afforded, the patient may die speedily,—asphyxiated. Here the morbid condition is evident, the therapeutic indication equally so. A stretched muscle contracts imperfectly. By diverting a portion of the torrent of blood that is pouring into it, we give the stretched ventricle a chance to recover its tone, and it will enter with renewed vigor upon its functions, the systole becomes efficient, and the dammed-up blood will find a vent into the left heart and arteries, and relief more or less permanent will be afforded.

In many cases, as in advanced mitral insufficiency or stenosis, this will be transitory, but in cases of pulmonary œdema and engorgement, etc., brilliant results may occasionally be obtained.

As the blood flows from the arm the patient will at once be sensible of great relief, cyanosis will diminish, dyspnœa will subside, the pulse may be felt to grow slow, more regular, and fuller, and before the flow has stopped he will often fall into quiet sleep. From one to two pints of blood may be abstracted with safety. Given pronounced evidence of over-distention of the right ventricle, quickness and feebleness of the pulse may be disregarded; with each ounce of blood abstracted improvement of cardiac tone and general condition may be expected.

At the meeting of the Pan-American Congress the writer read a paper on this subject, and related a case of the remarkable results of venesection in engorgement of the right heart. The patient recovered so as to be able to resume his very active business, and only succumbed to his cardiac disease within a few months, four and a half years later. Since then he has had several opportunities to practise the operation with excellent results, and in one instance to snatch a patient from the very jaws of death. The case is as follows:

On the evening of November 19, 1893, the author was summoned hurriedly by her husband to see Mrs. D., who informed me that he thought she was already dead. He reached the house quickly, and found her a well-nourished woman of middle age, supported in a chair by her attendants. She was cyanosed to the last degree and had ceased to breathe. A mass of white foam protruded from her lips and each nostril. Her heart was still pulsating and her radial pulse could be felt. As he watched, a gasping movement of the lips was observed.

At once she was placed upon the floor, her dress and corsets loosened, and artificial respiration begun. Much frothy mucus was expelled by the compression of her chest, but no voluntary respiration was evident at first. Immediately bleeding from the arm was instituted, artificial respiration being continued. After about a half-pint of blood had flowed, imperfect efforts at respiration were resumed, and voluntary respiration became established after a pint of blood had been abstracted. The pulse became very full and frequent, but she remained unconscious for more than a half-hour. Cyanosis gradually disappeared, and in an hour she had regained her natural color.

Upon examination, a pronounced mitral systolic murmur, with considerable ventricular hypertrophy, was detected. Repeated tests, her family physician stated, had revealed no kidney-disease. She slowly recovered from the effects of her attack and is to-day in fairly good health.

It was learned that she had not felt well during the day, but at eight o'clock had dressed in corsets and street dress and had

gone out for a walk with her husband. At some distance from home she had been seized with dyspnœa and had fallen in the street. After some delay and after she had become unconscious she was brought home in a cab. Within a few moments after her arrival, Atkinson saw her. During all this time her body was confined by her dress. It was evident that the exercise of walking (she was quite a stout woman) had violently excited the action of an already damaged heart, with the result of inducing a very acute œdema of the lungs, with rapid effusion into the bronchial tubes and over-distention of the right side of her heart. When seen by the writer she was completely asphyxiated.

The re-establishment of respiration by artificial means and the abstraction of a pint of blood enabled her heart to recover from the surprise into which it had been thrown and to resume the function for which it was ordinarily quite competent.

TIZZONI'S ANTITOXIN IN TETANUS.

BAUER (*Wiener Klin. Woch.*, November 8, 1894) reports the case of a laborer, aged twenty-six, who was admitted into the hospital at 8 P.M. on July 12. Eight days previously the sole of the right foot had been wounded by the entrance of a splinter. The injury was dressed at the time. On July 11 he first experienced tugging pains in the masticatory muscles. On the 12th he became unable to swallow, and cramps of the neck muscles appeared. He was a middle-sized, powerfully muscular man, with moderate adipose tissue. On admission, temperature 36.8° C., pulse 78, respiration 30; complains of thirst; pupils contracted, equal, and reacting promptly. Head strongly bent backward and drawn to the left. Unable to separate jaws widely; tonic contraction of masseters; tongue clean, moist, freely movable. A triangular, funnel-shaped wound of right sole, with pent-up pus, the skin around infiltrated and painful. Œdema of the dorsum of both feet. The wound was probed, enlarged, and cleansed, much ichorous pus draining away. Iodoform gauze introduced, and bandage applied. July 13 passed a quiet night. At 8 A.M. convulsions appeared. Head bent back and rotated to the left, and rigidly fixed. Upper part of trunk rigid, legs extended. The eye muscles, masseters, and neck muscles all tonically contracted. Mouth could be opened one centimetre with difficulty. Lips and angle of mouth drawn down on both sides, giving a sardonic expression. All the trunk muscles rigidly contracted, except shoulder and arms. Arms strongly flexed at the elbows and knees at an obtuse angle. Articulations of hand and fingers also flexed. Face and neck covered with beads of perspiration. The tendon reflexes much increased, the slightest touch eliciting convulsions. Temperature 36.8° C., pulse 84, soft, tension diminished. Urine examined; no albumin, no sugar. At 10 A.M. an enema of chloral hydrate (30 grains) was given, producing immediately a diminution of reflex irritability and some desire for sleep. At 4 P.M. the rigidity of upper extremity was more marked, eyes remain closed, expression more rigid. Tonic contraction of all the facial and neck muscles; arms abducted and strongly flexed. Since 10 A.M. ten attacks of convulsions occurred. Occasionally minor attacks occurred, which increased in intensity till the patient's head was jerked to the middle of his bed, and his feet shot right out of it. Much cyanosis during these and cries of pain. Pulse 90, respiration 60, chiefly abdominal. Urine clear at first, becoming turbid with phosphatic deposit, ammoniacal odor, no albumin nor nucleo-albumin. At 5 P.M. 2.25 grammes of Tizzoni's original antitoxin were injected, but at 6 P.M. five general convulsions of greater intensity occurred, followed by feebler attacks, affecting chiefly the upper thorax. At 12.15 A.M. of July 14 30 grains more chloral were given by enema, but notwithstanding three violent convulsions followed. Examination of the urine after the antitoxin injection gave the nucleo-albumin reaction. At 1.30 A.M. patient died in a severe attack, probably owing to spasm of the diaphragm. At the necropsy, the thyroid was found enlarged, the right lobe cystic, the left colloid. Both lungs much distended, full of blood, and soddened, with scattered slight hemorrhages in their substance. A copious frothy fluid exuded from the bronchi, which, in the lower lobes, were dilated and contained a tenacious mucus. Heart of normal size, right ventricle flaccid, left contracted, openings and valves normal, heart-muscle pallid, reddish-gray, rotten. Pleura and pericardium ecchymosed. Liver enlarged, somewhat congested. Spleen enlarged, soft; the pulp dark red and shreddy. Kidneys large, flaccid, congested; surfaces studded with clusters of venules. On section, cortex swollen and granular, pyramids dark red. Cerebral membranes congested, otherwise unaltered; brain cortex reddish violet; the medullary substance soddened and interspersed with very numerous puncta cruenta, the ventricles contracted. The author, in summing up, com-

ments on the severe character of the case, and expresses a doubt whether the hitherto successfully treated cases have not been of a more chronic character.—*British Medical Journal*, December 22, 1894.

A DEATH FROM A. C. E. MIXTURE.

According to the *New York Medical Journal* of November 17, 1894, Dr. R. Stansbury Sutton recently had a death occur from the administration of the A. C. E. mixture. The patient, a woman forty-four years of age, with a bleeding fibroid, was being anæsthetized in her bed, outside of the operating-room. The anæsthetic was given by an experienced assistant; it was given through an open cone, the top of which was filled with absorbent cotton. The entire amount of anæsthetic given was six drachms, of which four were probably inhaled. The patient was a large, fleshy, and anæmic subject. Prior to the administration of the anæsthetic she was given ⅛ grain of morphine hypodermically. Ten days before this, Dr. Sutton had given her an anæsthetic (sulphuric ether) for an examination, and no trouble had resulted upon that occasion. Her heart was examined prior to the administration of the anæsthetic on each occasion, and no organic lesion was detected. The time from the moment she began taking the A. C. E. mixture until she was dead did not exceed fifteen minutes. The patient was inverted, artificial respiration was instituted, and the tongue was drawn out and kept out. Trinitrin and brandy were injected under the skin, the left chest was slapped freely, and while the nurse was starting the battery the patient was pronounced dead.

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

Washbourne, Goodall, and Caird report in the *British Medical Journal* for December 22, 1894, their experiments with diphtheria antitoxin.

The injection was made into the flank with strict aseptic precautions. The quantity injected varied from 5 to 30 cubic centimetres at one dose, the total quantity during the course of any one case varying from five to ninety cubic centimetres. With a well-made syringe no difficulty is experienced in injecting as much as 20 cubic centimetres at a time. One hundred and eighty-two separate injections were made, and in none of them was there the slightest sign of any local inflammation.

Eighty patients under fifteen, certified to be suffering from diphtheria, were treated; eight were excluded from the statistics because they were clinically as well as bacteriologically not cases of diphtheria. The remaining seventy-two cases would have clinically been considered diphtheria, and can thus be compared with previous cases. A table is given showing the results obtained, from which it will be seen that the mortality has been diminished by one-half. The Eastern Hospital since 1892 has been personally supervised by one of the authors. It is the opinion of this observer that the cases treated with the serum were rather above than below the average severity. Not much stress was laid on comparisons with other hospitals, on account of the varying standards of diagnosis. During the period of antitoxin treatment at the Eastern Hospital, the mortality at the Western, Southwestern, Fountain, and Southeastern Hospitals was 33.3, 32.2, 30.5, and 23.6 per cent. respectively. At the last-named hospital the number of cases was too small for accurate comparison.

Of the seventy-two cases in the series, only sixty-one showed diphtheria bacilli; of these sixty-one cases, thirteen died, a mortality of 21.3 per cent., considerably lower than that (38.8) of the previous series of seventy-two cases clinically diphtheria. An account was given of the cause of death in the fatal cases. In ten death ensued from the poisoning of diphtheria, and in the rest from complications. In one case death occurred within eight hours and in another thirty-two hours after admission.

There were nine cases of tracheotomy, and six recovered. In thirteen previous series, of nine tracheotomies, the number of recoveries varied between none and four, and the average number of recoveries was 1.75.

For the sake of comparison with M. Roux's cases, the authors analyzed their cases of true diphtheria, and divided them into the following categories: anginas, croups not operated on, and tracheotomies. Angina pure (that is, without association with other bacteria), thirty cases with eight deaths, 26.6 per cent. Angina associated with streptococci, eleven cases with one death, nine per cent. Angina associated with brisou coccus, three cases, no death. Angina associated with streptococci and staphylococcus aureus, two cases, no death. Croups not operated upon, six cases with two deaths. True diphtheria, four cases with two deaths. Associated with brisou, one case with no death. Associated with streptococci, one case with no death. Tracheotomies, nine cases with three deaths. True diphtheria, five cases with one

death. Associated with streptococcus, three cases with two deaths. Associated with streptococcus and staphylococcus aureus, one case, no death.

In comparing these with M. Roux's statistics remarkable differences were found. Of pure diphtherial angina there were in his series one hundred and twenty cases with nine deaths, a mortality of 7.5 per cent.; of angina associated with streptococci, thirty-five cases with twelve deaths, a mortality of 34.2 per cent.

It will thus be seen that pure angina cases at the Eastern Hospital showed a much higher mortality, and those associated with streptococci a much lower mortality than M. Roux's; in fact, the mortalities were almost reversed.

On the other hand, the cases associated with the brisou coccus agree with his in being mild. The number of tracheotomies and croups is too small to draw any conclusions in reference to this point.

The clinical course of the cases under treatment fully bore out the evidence given by the above statistics. An account was given of the effect of antitoxin in diminishing the exudation, reducing the pulse-rate, and in improving the general condition of the patient. In severe cases the effects were not observed till after two or three days.

Mention was made of the fact that twenty out of the sixty-one cases were on admission suffering from the toxic effects of diphtheria, and an unfavorable prognosis was made; eight of these cases recovered. There is no evidence that the antitoxin diminished the incidence of albuminuria. It is still too early to speak of the effect on the incidence of paralysis, but so far six cases have occurred.

Apart from the curative action, two other effects were noticed,—a rash and the onset of joint palsies. The rash occurred in twenty-five per cent. of cases, and appeared from seven to nineteen days after the first injection. It was of an erythematous character, and was sometimes accompanied by pyrexia. Except for itching, it gave rise to no further inconvenience. In six of the cases there were joint pains, which appeared about the same time as the rash, and lasted at most three days.

The hips were most frequently attacked; there was pyrexia, no cardiac affection, and the condition of the patient was never serious. It was noticed that the incidence of rash and joint pains was greater in the cases treated with the serum from the first two horses from which it was obtained than in those treated with serum from the second. The latter serum was much stronger than the first and was used in smaller doses. With the exception of the antitoxin, no other treatment was adopted, except that complications were treated *secundum artem*.

The authors recommended the following doses of the serum, of which .0001 cubic centimetre neutralizes a dose of the diphtheria toxin otherwise fatal to guinea-pigs. In severe cases, 20 cubic centimetres when the patient is first seen, followed by 10 cubic centimetres in from eighteen to twenty-four hours, and again another 5 or 10 cubic centimetres in another eighteen to twenty-four hours; for a moderately severe case, a first dose of 10 cubic centimetres, followed by one of 5 cubic centimetres the next day, and perhaps another 5 cubic centimetres the day after that; for a mild or doubtful case, one dose of 5 cubic centimetres should there be any reason to suspect that the case is likely to become worse.

Because in any given case the larynx is involved, the writers did not necessarily consider the case a severe one; for by severe they meant one in which the toxic symptoms of diphtheria were present. But seeing with what rapidity membrane will spread along the air-passages, they recommended that from 5 to 10 cubic centimetres of serum should be given in every case of diphtherial croup without toxic symptoms, to be followed by another 5 cubic centimetres the next day if the symptoms showed no improvement.

This series of cases showed that if in a severe case there was no improvement by the fourth day of the treatment, none was likely to ensue. But where improvement is observed by that time, it is well to give another injection of 5 cubic centimetres on the fifth or sixth day.

The authors recommended the amount of the dose to be regulated not by the age or weight of the patient, but by the severity of the attack.

SURGICAL TREATMENT OF DISEASES OF THE STOMACH.

The *Medical Press and Circular* of November 28, 1894, contains an abstract of ROSENHEIM'S remarks in the Berlin Medical Society.

Rosenheim stated that as regarded the treatment of malignant disease of the stomach, results were only to be expected from the hand of the surgeon. There was no certain cure in operation, but this could not be decided against, as it had been only so recently made use of. A short time ago he had shown a patient who, four years before, had undergone resection of the pylorus, and the patient was still in good health. The operation, however,

could only be looked upon as a blessing when we succeeded in rendering patients healthy and capable of work for years. Two operations were to be considered,—resection with removal of all the disease, and gastro-enterostomy, the formation of a fissurous opening between the stomach and the small intestine, whereby stagnation of the masses was avoided. According to Guignard's statistics, the mortality in one hundred and fifty-three resections for carcinoma of the stomach was sixty-two per cent. Lebœuf's statistics on one hundred and eight cases showed a mortality of fifty-eight per cent. In resection of the stomach the decisive factor is the special technical capability of the operator. In the statistics of Kocher, who had nine cases, the two fatal ones were at the commencement of his operative activity. As regarded gastro-enterostomy, according to Guignard's data, the deaths were thirty-one per cent. in one hundred and five cases. Other operators had different results. Rockwitz reported a mortality of 12.5 per cent. in Luck's clinic, while for some years past the whole of Hahn's cases had recovered. The conditions that led to operation had also to be considered as regarded the end result. In what way the different factors influence the permanent result was shown by the speaker's own statistics. Of the cases of resection of the stomach, one died in a year of malignant peritonitis. The other three died soon after the operation, one thirty-six hours after from hemorrhage; the second—operated on against the speaker's judgment—died of collapse; the third, a woman, aged thirty-seven, who had bronchitis, died on the ninth day of pneumonia; eight other cancer patients on whom Loretta's operation was performed all died. On the other hand, he had not lost a case of gastro-enterostomy during the whole of last year. The statistics showed that resection was by far the more dangerous operation of the two, and the cases for it must be selected with great care. The patient must have good resisting power, and the local condition must awaken favorable expectations. Besides this, those cases must be excluded that, after opening the abdomen, showed their unsuitableness. Contraindications: 1, extension of the tumor over half the stomach; 2, extensive adhesion to liver and pancreas; 3, infection of the mesentery, especially metastases; 4, infiltration of the adjacent lymph-glands. By a critical selection of cases, therefore, the mortality would be reduced to a minimum. Any advance in results depended on advances in the determination of the diagnosis. There was no specific certain sign of the disease even in advanced cases, let alone the earlier stages. A combination of the symptoms, however, permitted a diagnosis bordering on certainty. The diagnosis was free from doubt only in two classes of cases,—that in which cancer particles were found in the contents of the stomach and that in which metastases were met with in other organs. At the same time, however, in a considerable number of cases, a probable diagnosis could be arrived at that justified an exploratory laparotomy. If the tumor was not operable, a palliative operation could be carried out. Many cases would be improved by washing out the stomach. When the obstruction was considerable, however, patients could not be kept up in this way, and here a palliative operation was demanded. This had given brilliant results in the speaker's eight cases. The majority of the patients had remained well eight months after the operation. No doubt the stimulating energy of the local irritation had a considerable influence, and when this was removed the further development of the carcinoma was decidedly restrained. Patients recovered from their condition of lowered function might return to the normal after resection of the pylorus. In cases of gastro-enterostomy the motor function could not be completely restored, but the patients were freed from trouble and increased in weight. Secretory activity could not be completely restored by suitable emptying of the stomach, but patients might improve. This palliative operation, which, when performed by a skilled hand, was free from danger, could be carried out more frequently than hitherto. The results in the case of simple tumors would be better than when the disease was malignant. There were various methods of relieving obstruction in narrowing of the pylorus,—resection, gastro-enterostomy, and pyloroplastique. Four of his cases on whom Hahn performed gastro-enterostomy were quite well. This operation was the sovereign procedure in all cases in which stricture of the pylorus had to be overcome. Pyloroplastique appeared to be suited for those cases only of cicatricial stricture caused by caustics. In all cases of true ulcer no cicatrix was found. Cases of open ulcer were very unsuitable for pyloroplastique, for, if the ulcer remained open, all sorts of complications, such as hemorrhage, might arise; if the ulcer healed, a second stricture might be formed that rendered the value of the first operation illusory. The operation was impracticable when there were extensive adhesions on the posterior wall. Resection was to be rejected in stricture of the pylorus. Idiopathic

dilatations of the stomach were to be included in the benign strictures. In the case of cancerous stricture, the lowered nutrition was first to be taken in the measure of motor disturbance; an objective measurement was then to be made. In this way a proper judgment might be reached in the course of weeks. Too much time should not be lost in waiting. When symptoms of tetany appeared, operation was then too late. The decision was to be made (1) from the degree of emaciation, (2) the state of the skin, and (3) the state of the urine. The operation of gastro-enterostomy was indicated when lowered nutrition advanced. No judgment as to the function of the stomach was to be formed from washing out the stomach once or twice.

As regards the operative treatment of ulcer, three things were to be considered: (1) hemorrhages, (2) perforative peritonitis, and (3) perigastritis. As regarded hemorrhages, experience was not very inviting; the patients had died after operation. Operation should have been postponed until they had recovered strength. If patients became progressively anæmic, operation must be proceeded with quickly. Acute perforative peritonitis had been operated on fifteen times; only one case had ended favorably. If perigastritis had taken place after perforation, this might be the object of surgical treatment. The diagnosis was very difficult. Many of the symptoms of it were present in neurasthenia. For determination of the diagnosis laparotomy was to be mentioned. Finally, narrowing of the cardia should be named. Quite a number of these cases had been treated by laparotomy. In fairly advanced cases the results had not been brilliant; his own cases had not lived over three months. Operation in these cases was only to be recommended when fluid or pultaceous food no longer passed. It was of no consequence whether the sound passed the stricture or not, as nutriment, in spite of this, could still pass through. It was different when the stricture was benign. If the sound passed no longer in such cases, gastrotomy should be advised, as the spot might then be dilated from below. The cases in which jejunostomy had to be performed were rare. The operation was well worthy of consideration, however, as it was free from danger.

THE NEWER ANTIPYRETICS: ACETANILIDE AND PHENACETIN: THEIR DRAWBACKS.

Under this caption, in an editorial, the *British Medical Journal* of December 22, 1894, says that, though one of the most largely used and efficient antipyretics, acetanilide is not free from the objections of its congeners of the aromatic series; on the contrary, it induces symptoms of intoxication perhaps more frequently and at times more alarming than any of the others. It has an action on the nervous system similar to antipyrin, the power of lessening pyrexia being even greater. The fall of temperature is usually accompanied by perspiration more or less profuse; it may attain its maximum in two or three hours, and finally bring on depression and collapse. Not uncommonly we meet with a rebound, ushered in by chilliness and rigor; on the other hand, a few reports show that this drug, like antipyrin, may send the temperature up in an unexpected way. Its action on the heart may be very pronounced, and makes the utmost care imperative in administration to children and weakly individuals. There is a difference of opinion whether the depressive action attains the same degree as after antipyrin. Individual experience varies in a striking manner not easy to explain; it may be a more careful attention to dosage has followed the publication of the earlier cases of acetanilide intoxication. With the exception of miliaria produced by copious diaphoresis, untoward effects on the skin rarely obtrude themselves. An impression exists among practitioners that acetanilide may induce or increase bronchial catarrh in children, though there is no evidence that it does so in greater measure than antipyrin; cyanosis is, however, more striking; it may appear with very small doses and persist for days after the discontinuance of the drug. Prolonged administration, even in moderate doses, may develop a marked state of anæmia. This is a symptom which has scarcely received the attention it deserves, for its onset is often rapid and it may reach a considerable degree. Gastric disturbance is not prominent, impaired appetite and nausea being only occasionally noticed.

The quantity of acetanilide used as an antipyretic varies from 5 to 10 grains for an adult; its power as an analgesic is slight. Many practitioners employ it extensively as a quickly acting remedy, further recommended by its small bulk and comparative cheapness. A child of three years would receive a 1-grain dose, a boy of ten about 3 grains, and children up to fifteen 3 to 4½ grains; it should generally be combined with a stimulant.

In phenacetin a claim to freedom from ill effects, put forward on its introduction, has been justified in a comparative sense by subsequent experience. Nevertheless, we may meet

with unpleasant and profuse diaphoresis, rendering its habitual use in phthisis and typhoid fever undesirable; collapse and exhaustion are not unknown, even after medium doses, while palpitation and oppression of breathing, followed by nausea and vomiting, have likewise been observed. Cutaneous eruptions, chiefly urticarious, prevail with a frequency scarcely inferior to antipyrin; and cyanosis of the face, due to changes in the hæmoglobin, may be seen to a similar degree. In short, we may meet all the ill effects of the aromatic group, though the incidence is undoubtedly less. Its use as an antipyretic, however, remains small, as its power in that respect is not equal to the others, except when given in doses that are very often associated with symptoms of intoxication.

New substances, each bearing a sanguine prospectus, continue to appear as antipyretics, in the endeavor to reduce to a minimum toxic action on nerve and muscle. Success has not yet rewarded the effort, and the experience of the most recent—phenocoll and salipyrin—is too limited to draw any trustworthy conclusion: so far the results are not encouraging.

The important question of impurity and adulteration should not be lost sight of in considering the ill effects of any drug. Good work has been done in this direction with the salicyl preparations, and pharmacists are now more alive to its importance. Many of the toxic symptoms of acetanilide so closely resemble aniline-poisoning as to suggest the production of that substance in the blood. There is a close relationship between the two bodies and some ground to suspect the occasional presence of aniline in samples. Again, phenacetin may be adulterated with phenacetidin, a by-product in manufacture and a poisonous substance, which, in small doses, brings on kidney-trouble.

In any attempt to estimate the comparative efficacy of a group of antipyretics, we are met at the outset by the existence of widely diverging opinions on the pathological significance of elevation of the body temperature. We may regard fever as "a wise contrivance of the organism," and revert to the doctrine of the ancients, who believed the *calor præter naturam* of Galen to be of "salutary influence" and a means of ridding the economy of noxious material. Experiments are not wanting claiming to show that increased body-heat raises the tissue resistance and its phagocytic power, or renders the tissue unsuitable to the growth of the active principle of disease. MacAlister has pointed out, however, the danger of viewing the febrile process too much as a separate entity, and has, moreover, shown that the ideas of the other extreme school—that all pyrexia is dangerous and ought to be reduced—cannot be substantiated in its entirety. Definite and practical conclusions are not possible in the light of our present knowledge of the pathological processes underlying fever. The recent doctrine of phagocytosis gives promise of breaking fruitful ground, and there is much to be done in determining the influence of the nervous system on pyrexia, as well as the workings of the thermal mechanism and their relation to centres in the brain.

The question of antipyresis hinges largely upon the important fact that a persistence of high temperature implies serious consequence to the heart-muscle; on the other hand, from clinical evidence we gather that a fall in pyrexia is followed by marked relief to the patient's general condition. An ideal antipyretic, to quote Liebermeister's definition, would be one that limits the production of heat, and it is claimed for the antipyrin group that such is their action, "repressing thermogenesis and simultaneously rendering heat dissipation more efficient." The evidence from experimental sources has, however, proved very conflicting, and we have already alluded to the view that the main action is on the thermolytic mechanism. This would throw them rather into the category of antithermic remedies, to which all fever-reducing drugs, with perhaps one exception, belong. Gottlieb urges that an antipyretic of the antipyrin group should be given when it is desirable to procure reduction of high temperature rapidly and safely, and to reserve quinine (which, he holds, lessens heat production and is a true antipyretic) for a more prolonged administration. To some extent the therapeutical application runs upon the lines of this generalization, for quinine continues to be the febrifuge most favored in the hectic state, and antipyrin and acetanilide in sudden accession of temperature of short duration. The prevalence of heart-failure among the untoward effects of the antipyrin group enjoins the necessity for caution where the cardiac organ suffers. It requires very little consideration to apply this to their use in diphtheria, pneumonia, and typhoid fever, though it by no means follows that their toxic action is more pronounced than others; on the contrary, they mark a distinct advance towards the consummation of the therapeutic ideal, bringing fresh assurance of further success in the future. The study of the ill effects of drugs is of great importance to the practice of

therapeutics; much can be done in the way of prophylaxis if they are kept prominently in view. Perhaps in the future it will receive increased attention and do something to establish the use of antipyretics on a more definite basis and at the same time in this relation remove the reproach of Montaigne that "the drug is an assistant not to be trusted."

"BORISM," OR THE TOXIC EFFECTS OF BORAX.

FERÉ (*Sem. Méd.*, November 3, 1894) having given borax a six years' trial, in all doses, in epilepsy, finds it far inferior to bromide of potassium in efficacy and far more dangerous in its toxic effects. Gowers noted the diarrhœa, nausea, and vomiting caused even by small doses, and accused it of causing psoriasis. In France early attention was drawn to the digestive troubles and eczema induced by it. The intestinal toxic effects are the most frequent and the earliest. Occasionally absolute intolerance exists, nausea and vomiting occurring after the first dose. More often, after a few doses, there are loss of appetite, sensations of weight and heat at the epigastrium, with ensuing nausea, pains in the temples, and vomiting. Administration in glycerin, instead of aqueous solution or intestinal antisepsis, may remove these effects. Borax causes a peculiar dryness of the skin and mucous membranes. The lips and tongue are reddened and denuded of epithelium. The lips and angles of the mouth are fissured, the conjunctivæ injected. The lack of fatty matter in the skin secretion is shown by Arnozan's method. Thus, powdered camphor is placed on water, into which is plunged a glass rod previously held in contact with the skin. The camphor particles cease to gyrate if fat be present. No such reaction occurs in "borism." The skin loses its fat in a determined order, naturally sebaceous parts, such as the face, the alæ of the nose, being the last affected by borax. Conversely, the fat reappears first in these parts on the stoppage of the drug. The skin dryness, even without an eruption, often coincides with a dryness of the hair, which falls out; hence an alopecia of the scalp, which is general. Sometimes even the beard, eyebrows, axillæ, and pubes are stripped. Constitutional skin rashes may be rekindled by borax, but more special to it are (1) an eczema, like seborrhœic eczema, but varied. (*a*) Papules or small circles, with red and squamous borders, which, enlarging, fuse together, forming more or less extended, often symmetrical, plaques. This variety begins in least sebaceous parts,—the hypogastrium, lateral regions of trunk, etc. Or (*b*) eruption of seborrhœic acne, with slight desquamation of the scalp, with or without alopecia. These forms usually improve under intestinal antisepsis or local treatment without stoppage of the drug. (*c*) Pink or red, more or less confluent, plaques, giving the skin a uniform tint, with fine desquamation, deserving the epithet "scarlatiniform." (2) Papular eruptions of variable extent, confluent or not, with pruritus, and followed sometimes by fine branny, sometimes by large flaky, desquamation. Sometimes with the papules are petechiæ. Cachexia, emaciation, œdema of face and extremities are often present with these generalized eruptions. Or there may be cachexia without cutaneous lesions, the nails being deeply furrowed transversely, as after fevers. Furuncular outbreaks may occur as accidents of cachexia. A line on the gums, similar to the lead line, is probably microbic. In two patients large, painful, symmetrical "myosites" of the sterno-mastoid muscles were present, with slight rise of temperature; this condition lasted fifteen to twenty days. Lastly, separate swellings of eyelids, or face, or extremities may occur, without any other symptom. The urine will then be found loaded with albumin. As these manifestations may escape notice for a time, the danger is obvious. The cessation of the drug, probably owing to its tardy elimination, by no means always arrests the kidney-trouble, as in one case of the author's, which went on to uræmic coma and death.

"FAT MILK" INFANT'S FOOD.

GARTNER recommends (*Allg. Wien. Med. Zeit.*, October 13, 1894) freshly "separated" diluted cow's cream as an infant's food. Good cow's milk is treated with an equal quantity of water and placed in a centrifugal "separator." The fluid which runs from the "cream tap" contains all the cream of the original milk except about .1 or .2 per cent., half the proteids, and half the milk-sugar. This gives a very close imitation of human milk, with the exception that the milk-sugar is much too low. Escherich gives the following comparative table of analyses:

	Casein.	Fat.	Sugar.
Gartner's "fat milk".....	1.76	3.0	2.4
Human milk.....	1.82	3.94	6.23
Diluted cow's milk.....	1.76	1.81	2.4

Gartner urges that the "fat milk" has the further advantage that the process of centrifu-

galizing removes the grosser impurities, hair, etc.—*British Medical Journal*, November 10, 1894.

TREATMENT OF TUBERCULOUS PERITONITIS.

At the last meeting of the Académie de Médecine, M. FOLLET related the case of a woman suffering from tuberculous peritonitis, and in whose abdominal cavity he injected three litres of air after having removed six litres of serum. The liquid did not return, the general condition of the patient remained good, and this satisfactory result has been maintained for the last eight months. The speaker alluded to a somewhat similar operation, reported by Von Moorhof, on a child of five years, for a tuberculous lesion of the scrotum; after withdrawing a large amount of fluid, M. Moorhof insufflated air into the sac, and up to the present—that is to say, five months—no liquid has returned. M. Follet suggested, consequently, that this benign operation might be resorted to where laparotomy was not feasible.—Paris correspondent *Medical Press and Circular* of December 5, 1894.

LOCAL TREATMENT OF FAUCIAL DIPHTHERIA.

LOEFFLER (*Deut. Med. Woch.*, October 18, 1894) emphasized the importance of local treatment based on a bacteriological study such as he has followed out in a large number of cases. Many antiseptic solutions kill diphtheria bacilli in a few seconds. Equal parts of turpentine and alcohol were found much more efficient when carbolic acid (two per cent.) was added to them. Ferric perchloride kills the diphtheria bacillus very rapidly. The author uses the following application: alcohol (60), toluol (36), and liq. ferri perchlor. (4). Fully developed diphtheria cultures were killed in five seconds. If a dose of virulent diphtheria bacilli was introduced beneath the skin of a guinea-pig, and followed by $\frac{1}{10}$ cubic centimetre of the above mixture, the animal did not become ill, and even after an interval of one to four hours it was saved. This remedy was used in an epidemic of diphtheria. Among seventy-one patients treated out of hospital, not one died. Of thirty hospital patients, five died; in four of these the disease had already extended into the larynx and nose and the fifth died of gangrenous pneumonia. The general condition of the patients soon improved; complications were rare. As long as any membrane remains, a further application should be vigorously used at least every four hours. When decomposition processes are present in the throat, the chloride is converted into sulphate, and is inefficient. Menthol was found a useful addition (10 grains to 100 grains of the remedy). Creolin (two to three per cent.) and cresol were found useful substitutes for the iron, but they are inferior in bactericidal properties. The author has also tried the addition of pyoktanin with good effect. In all cases of genuine diphtheria the iron mixture should be used, but where decomposition processes are going on, the other solution, especially that containing cresol, should be tried.

GOLDSCHMIDT (*Rev. de Méd.*, October, 1894) speaks very highly of the internal use of the perchloride of iron in small and frequent doses. He has used this method of treatment for thirteen years, and has never lost a case where the larynx was intact.—*British Medical Journal*, November 10, 1894.

INTRAUTERINE MEDICATION.

The Berlin correspondent of the *Medical Press and Circular* of December 5, 1894, states that, in a discussion, MARTIN said that the curette used almost daily by him since 1884 was an extraordinarily useful instrument. By fixing the uterus the curetting could be done more easily, and the instrument could often be passed without dilatation. This was an advantage, as almost the whole material removed could be examined.

FALK said that, especially in the case of intrauterine injections, pelvi-peritonitis could not be avoided with certainty. They should not, therefore, be made use of in actual disease of the endometrium.

L. LANDAU said that, considering how many medico-legal cases there were on account of intrauterine treatment, they should be thankful to the speaker for bringing forward the subject. In these cases different opinions had been expressed, and this showed that the question was not in general sufficiently cleared up. In one case a medical man was blamed for having used a Roux's curette. Now, even dangerous instruments did not do harm in the hands of a master. He did not know a more dangerous instrument than Roux's curette. In addition to the intrauterine treatment included by the reader of the paper, he would name (1) the introduction of antrophores; (2) the introduction of stem pessaries; (3) electrolysis; (4) the introduction of medicaments in solid form,—pencils of chloride of zinc, etc. All these were, however, completely in the

background compared with the four principal manipulations,—sounding, injection, dilatation, and the curette. The great danger in their manipulation did not lie in perforating the walls of the uterus, but in salpingitis, the excitation of peristaltic movements, and the forcing of material into the peritoneum. This danger had been undervalued. There were a number of catarrhs that had a virulent character. We readily forgot that the colic caused by the introduction of a sound was not alone the expression of a uterine contraction, but that the tubes also bore a part in the colic. The fact remained that in a number of carefully conducted examinations with the sound, pelvi-peritonitis, hydrosalpinx, and even fatal peritonitis might arise. The introduction of medicaments was the more dangerous the more different they were, and we should not assume that these substances always made their way through the tubes. A published case that occurred in Bonn showed this. A young woman, on account of sterility, had her uterus curetted and liq. ferri sesquichl. injected. Death the same evening. The autopsy showed that the fluid had simply *per continentatem* been forced into the small open veins; a thrombus had formed in the vena cava and caused death. Contraction of the tubes could not be prevented, and the contents of the tubes were not always so aseptic that their entry into the peritoneum need not be dreaded. He himself did not make injections into the uterus unless the finger could be passed into the uterus and an exit guaranteed. The worst thing that could be observed in this connection was curettement plus injection. The indication for curetting must be restricted. The best preliminary treatment was dilatation by means of iodoform gauze tampons, as introduced by himself about ten years ago. It was not always possible to distinguish hyperplastic endometritis from catarrhal before curetting. In abortion the curette should not be used four to six weeks after without previous dilatation. Here also it was useful to dilate with iodoform gauze and then curette with the finger. He did not assert that dilatation by means of iodoform gauze was free from danger, but he was not in a position to prove with certainty that the gauze was responsible for the result in Olshausen's cases. In all the four uteri there were remnants of myomata left behind which, even without the introduction of iodoform, would decompose with probably fatal results.

Intrauterine manipulations should be restricted as much as possible, injections should not be employed at all, and the sharp spoon only in extreme cases, essentially in a diagnostic and therapeutic interest where exploration indicated disease of the uterine mucous membrane alone.

ON THE USE OF ANTIPYRIN IN LARGE DOSES.

McCall Anderson states in the *British Medical Journal* of December 1, 1894, that among the coal-tar derivatives recently introduced into practice, none can compare, in his opinion, in value with antipyrin, whether regard be had to the certainty of its action when appropriately administered, or to the manifold conditions with which it is capable of grappling.

Personally, the author has had hardly any experience of its deleterious effects—at least of a serious nature—when employed with due precautions. Once or twice it made the patients "feel very ill," and, when pushed, vomiting was occasionally induced. In certain cases, too, a rash appeared upon the skin, generally of a measly or erythematous character, but this rapidly disappeared when the use of the drug was suspended, and was never a source of any uneasiness. In this opinion McCall is confirmed by the report of the Therapeutic Committee of the British Medical Association, appointed to make "an inquiry regarding the importance of the ill effects following the use of antipyrin, antifebrin, and phenacetin."

"Out of one hundred and eighty-nine observers who report on antipyrin, no fewer than one hundred and thirty-eight, or seventy-three per cent., have never observed any ill effects at all worth mentioning. Considering how large is the experience of the action of this drug represented in these reports, this large proportion of observers who have no ill effects to record is very remarkable. Almost more than any other fact could do, it seems to testify to the comparative harmlessness of this drug when properly administered. It is clear, then, if one may be allowed to judge from these reports, that ill effects following the use of antipyrin are not only relatively, but absolutely infrequent in their occurrence. One observer expresses his opinion that they are 'rarer than the idiosyncrasies of the iodides or quinine;' and certainly, so far as the above reports go, this would appear to be the case."

But it must be admitted that this is contrary to the opinion of many, and it is only to be accounted for by the supposition that the drug was impure or the initial dose too large, or that they have been unfortunate in giving it to patients with whom it disagreed in virtue of a pe-

culiar idiosyncrasy, which it shares with many other valuable medicines. But if we are to fight shy of everything which disagrees with isolated individuals, we would not only have to deny ourselves the use of many valuable remedies, but also of almost every species of food and drink.

Did space permit, many other similar cases, in which equally good results were obtained, might be quoted, but the above may be taken as fair samples of the whole, and the following aphorisms may be laid down as the result of the author's experience.

Antipyrin is not the dangerous drug which some observers have led us to suppose.

It may be given with safety in large doses, even in the case of children, in most cases, although the initial dose must be small, and it must be slowly and cautiously increased, the patient always being carefully supervised.

In large doses it often yields surprisingly good results, and in chorea it is the only medicine from which cures may confidently be anticipated.

THROMBOSIS OF THE SUPERIOR MESENTERIC VEIN.

With regard to the diagnosis there are certain symptoms which, when associated, are fairly, though not positively, characteristic. They seem to be, in the order of their importance, as follows: (1) colicky, very intense, not definitely localized, abdominal pain; (2) bloody diarrhœa; (3) subnormal temperature. Vomiting, if present (and next to pain it is the most frequent symptom), strengthens the diagnosis, as do also abdominal distention and marked prostration; but the first two or first three symptoms, when occurring in combination, are the only ones that can be called in any sense characteristic. Pain is the first symptom more often than any one other, and its intense character is dwelt on by several authors.

Gerhardt and Kussmaul speak of the evidence of embolism elsewhere in the body as one of the symptoms essential to making the diagnosis. When present, it is, of course, of great value; but, as already pointed out, it occurred in but few of the cases enumerated here (eight). The coexistence of cardiac disease and atheromatous arteries is also affirmatory in connection with the important symptoms mentioned. There remain a considerable number of cases in which there are no well-marked abdominal symptoms; in these it is impossible to make a diagnosis. In about one-fourth of the cases the symptoms are seen to be sufficiently characteristic to warrant the diagnosis. In none could the extent of the intestinal lesion or the situation of the thrombosis or embolus have been determined without surgical exploration of the abdomen.

Surgical Operation.—In about one-sixth of the cases the autopsy showed that the intestinal lesion was sufficiently limited and well defined to allow of a successful resection of that part of the bowel.

In the majority of cases there are coexisting diseases, most frequently cardiac or renal, or atheromatous arteries, and most of the patients are beyond middle life.

There is, on the other hand, a small minority of cases of individuals below middle life in whom the source of the embolus or cause for thrombosis is obscure or undiscoverable, in whom no serious disease of other organs can be detected.

Practically, all patients die when left to themselves or under any form of medical treatment.

From the above considerations it may be concluded that laparotomy is indicated in all cases in which the symptoms suggest the nature of the disease, and in which the patient is not too greatly prostrated or has not some fatal disease. There will probably occur a few in which the local and general conditions of the patients are favorable to success. Where a not too extensive portion of the gut is involved, and if it be possible to do so, resection of the diseased part should be practised; otherwise an artificial anus should be made, and if the patient survives, the cut ends of the bowel may be united subsequently. That this is actually possible is shown in the remarkable case of Elliot's, in which he successfully resected about four feet of the small intestine.—WATSON, in *Boston Medical and Surgical Journal* for December 6, 1894.

TREATMENT OF PILES.

The Paris correspondent of the *Medical Press and Circular* for December 5, 1894, states that PAUL RECLUS has published his method of treating hemorrhoids in all the stages of the affection.

In the first stage, that of intermittence, where the attacks occur but three or four times a year, and accompanied by a slight burning sensation and pruritus of the anus, with a small flow of blood, he orders gentle purgative applications of very warm water, enemas at the same temperature, and applications of plugs of cot-

ton steeped in a one-per-cent. solution of cocaine.

In the second stage, where the piles are procident and the rectal varicose veins are very painful, he uses forcible dilatation, which gives unvarying success. Before employing the speculum he produces local anæsthesia of the parts in the following manner: the patient being placed in the classical position on the side, with one leg extended, the other bent on the thigh and on the abdomen, an assistant exposes the anal region. M. Reclus takes in a forceps a small plug of cotton steeped in a one-per-cent. solution of cocaine, and passes it into the rectum as high up as possible; this plug is followed by another a little larger, and yet a third and a fourth, increasing in size until he can insert one as large as a walnut. He then takes an ordinary Pravaz syringe filled with the same solution, and inserts the needle into the perineum, half an inch from the anus, and injects slowly the contents, taking care to turn the needle in different directions, and by this means one-fourth of the circle limiting the rectal orifice is anæsthetized. The injection is renewed in the second quarter, and so on until the circle is completed, each syringe containing one-fourth of a grain; it is thus that one grain of cocaine has been injected. But in order that the dilating process should be painless, the sphincter must be anæsthetized, and for this purpose the operator passes the index finger of the left hand into the rectum and plunges the needle through the skin up to the muscle, guiding it with the finger; he empties half of the syringe at that point and the remainder as he is withdrawing it. M. Reclus has operated in this way on twenty-six patients without any accident.

In the third stage, where the veins form a turgescent mass, M. Reclus removes them with the bistoury, without dissection of the mucous membrane and without paying much attention to the hemorrhage. The sutures are applied in the usual way, and the patient is generally well in a fortnight.

TREATMENT OF URETHRAL CHANCROIDS.

CLARK, of Providence, in the *Boston Medical and Surgical Journal* of December 20, 1894, emphasizes the fact that no more obstinate and trying case presents itself to the surgeon, perhaps, than the chancroid of the male urethra. A chancroid is ordinarily a matter of so little moment, and the proper remedy so ready in every physician's office, that the cure of this disease seems almost child's play. But in the case of the urethral ulcer, the destruction of the virus of the local sore is only a tithe of the work to be done; for it is then, and then only, that the real difficulty in the cure begins.

The authoritative works on the subject are so pessimistic in their views, or else so chary of giving advice which is generally not well known, that we can gain little or nothing from them. After consulting ten or twelve reputable works on venereal diseases without finding hardly a hint of the proper course to be followed in all such cases, the writer was left to his own resources, and he fell on a plan which gave him surprising and gratifying results.

It is not our intention to enter into any discussion relative to the possibility or the impossibility of a soft chancre appearing in any and every part of the male urethra. Suffice it to say that it must at least be seen to be diagnosticated. In one of the two cases under examination the ulcers appeared wholly within the urethra; in the other, an ulcer first appeared near the inner edge of the meatus and then others within the urethra, due to reinoculation; none were visible beyond an inch from the meatus. The age of each patient is of no interest to us, neither is his condition nor color. They were strong, healthy males. Part of the time both were under treatment together. The second case had the advantage of the first, so that the two were pronounced well within a few hours of each other. The extension of the disease in the second case undoubtedly delayed his cure, for as many as fifteen or twenty new ulcers appeared during treatment, due to reinoculation, which had to be retouched with caustic.

In the treatment of this particular local sore, as in others, two axioms, we might say, should be followed,—one the absolute destruction of the virus, the other the healing of the sore.

A few words only will detain us on this first point. The only difficulty experienced here will be in getting at the sore. When the chancroid is situated from a half to a full inch from the meatus, this is not so easy a matter. The urethra must, therefore, be distended to that point. A Toynbee's ear speculum will do it, or any ear speculum, or a pair of dressing forceps, well oiled and insinuated into the urethra, and then the blades carefully spread apart as far as may be necessary, is as good as the best meatoscope. In a person of a sensitive organization the instrument used may be rubbed with an ointment of cocaine (four per cent.). In this way one may be enabled to touch each sore

thoroughly and destroy the virus on one application. Don't tamper with the disease. Use strong nitric acid. A small pointed strip of asbestos, or a piece of lint or cotton fixed on the end of a silver probe, or a pointed sliver of wood (like a match), dipped in the acid and applied to every part, will answer.

Now, having destroyed the poison, every encouragement must be given to the healing process, to prevent reinoculations, and thus spare the patient additional and oftentimes unnecessary pain. The disease must now be treated like any ulcer of the urethra, not venereal. It is now a matter of pure surgery, and it lies wholly within the power of a surgeon to relieve the trouble or to stumble along in the dark to his own disgust and the patient's disappearance.

In any operation within the male urethra it is the desire and aim of the surgeon to keep the wounded or cut surfaces of the canal apart for two reasons,—namely, to favor healing and to prevent narrowing of this canal. The same is true in cases of urethral chancroid. The diseased surfaces in the latter case are kept apart, and also for the purpose of preventing future reinoculation, should any virus be left or any sore at first escape notice. Otherwise, by continual reinoculations the cure will be greatly retarded.

A hundred methods may be employed to keep the diseased surfaces well separated. Whatever is used, the principle remains the same. The writer employed pledgets of absorbent cotton (lint or any other soft and pliant material may be used) smeared with petroleum jelly. When a stimulating ointment was desired, a mild ointment of red oxide of mercury was used, in the proportion of one part of the official ointment to seven of lard or of simple cerate. When the patient wished to pass his water, the cotton was withdrawn and a short piece of a gum catheter (say No. 8 or No. 10 English), long enough to reach beyond the diseased portion of the urethra, and well smoothed at the cut end and well oiled, was introduced. In this way the tender surface would not be torn by the passage of the urine. After every urination a fresh piece of cotton, treated as before, was introduced. In every case the temporary catheter must be well cleansed, and disinfected if possible. Strict cleanliness of person, instruments, and appliances was enjoined. All old dressings (if any are used) should be burned.

Instead of this alternate use of the pledget of cotton and of the catheter, perhaps some advantage in the treatment of such cases might be gained by leaving a short catheter in the urethra until a cure is effected. In this case the catheter should be removed and another introduced, or, if only one is employed, the urethra protected while the patient cleanses the instrument before its reintroduction. Catheters of light weight are to be preferred, especially if to be retained in the urethra during treatment. After the disease disappears the gum catheter should be burned. As the writer had but two cases, the permanent use of the catheter could not be tried. Should he have another case, he might try it.

The best topical applications besides the stimulating ointment of mercury are those of a liquid character and which can be used by means of a syringe; their number is almost legion. The writer employed both the black and yellow washes (lotio nigra and lotio flava), but they did not seem to have any advantage over the red oxide of mercury. Such washes may be applied two or three times a day, and diluted to suit each case. Zinc, lead, and copper salts may do good.

However, whatever treatment is followed, that which is simplest, neatest, and gives the most comfort to the patient—is most in accordance with common sense—is the ideal one, and should be selected in preference to putting into practice any pet theory by which nothing additional is gained.

THE TREATMENT OF BLEEDING FROM THE NOSE.

An editorial in a recent number of the *New York Medical Journal* states that the *Revue Internationale de Rhinologie, Otologie, et Laryngologie* for August 10 publishes an article by Dr. Baumgarten, of Budapesth, in which he recommends the following methods in the treatment of epistaxis: A thorough examination of the inside of the nose must be made in order to discover where the bleeding comes from. Usually there are to be seen at the anterior part of the septum, rarely elsewhere, one or more small superficial vessels of a red color, or else little nodules, erosions, and varicose veins, or a small empty vessel, looking blackish on a red background. Occasionally the hemorrhagic spot is covered with fresh blood-crusts, which must be softened and carefully raised in order to expose the appearances referred to. If there is nothing of a suspicious nature to be seen, the patient must be made to blow his nose several times. Another method is to apply a tampon of wet cotton to the septum, and press it more and more firmly against the place until the morbid spot bleeds.

Sometimes this brings on at once a more abundant hemorrhage, which makes the continued application of the tampon necessary before the bleeding can be arrested. For this purpose the author has used the galvanic cautery or chromic acid, sometimes both. He touches the spot with the cautery, which is very painful, and the wire loop cannot always be withdrawn while it is still red, so that the eschar is apt to be removed at the same time. Then the small wound bleeds feebly, and it should be cauterized with chromic acid, which, according to Dr. Bresgen, is an excellent hæmostatic. When operating on children or on timid persons, Dr. Baumgarten uses the chromic acid only, but the cauterizations must be repeated two or more times after the eschar has fallen or after a fresh hemorrhage. This treatment must be continued until a plainly visible cicatrix is produced. The patient must be told not to scratch the eschar, to apply a little oil or grease to the spot, to keep quiet, to avoid handling his nose, and not to blow it too hard.

Sometimes sneezing occurs, and this may bring on a hemorrhage through the eschar; in this case the application must be renewed. A hemorrhage must always be arrested before cauterizing the spot from which it proceeds. After the source of the hemorrhage has been ascertained, the spot is washed with warm water, the nostril is dilated, and as large a tampon as possible is inserted, against which the wing of the nostril is pressed with the finger. That generally suffices, as nearly all forms of epistaxis have their origin in the forepart of the nasal passages, but the patient must hold himself erect and remain quiet. After this pressure has been continued for a moment, the tampon is slowly withdrawn in order to find the origin of the hemorrhage. A second tampon is then pressed against the spot. The epistaxis is thus often arrested. Afterwards the place may be cauterized with chromic acid. The author has often succeeded in covering the bloody points with a layer of chromic acid by pushing the tampon forward very gently; it cannot always be removed immediately, because the wound will bleed anew, and it must be left until the following day, or longer, if necessary. The author, however, has never had to repeat this for more than three days. He always uses cotton saturated with carbolic acid or some other aseptic cotton, but never iron perchloride, as that only cauterizes.

If the blood runs through the tampon or into the pharynx, the physician should use the same means as those employed in the more serious hemorrhages. After the part has been washed with warm water, a strip of iodoform gauze as wide as a finger should be pushed as far as the choana; then the entire nasal fossa should be packed with the same material. This may be done easily and without pain; it is better than Belloq's method, and may be accomplished even with a contracted nostril. With regard to Belloq's method, Dr. Baumgarten thinks it is not sufficient, and that it may produce accidents to the ear, etc. In one case, that of an old man who was the subject of advanced arterio-sclerosis, Belloq's tampon was inserted, and several tampons were added anteriorly. Two physicians had tried to stop the bleeding, but their efforts had been of no avail. The velum of the palate had been cut, and it was ulcerated and œdematous. The author, who was called in, immediately removed everything, and while the bleeding continued he applied strips of iodoform gauze, and two days afterwards the hemorrhage was arrested.

As a palliative method, or in cases where the anterior tampon is not efficacious, or where the patient is taking care of himself pending the physician's arrival, the author recommends the use of warm water, which is a better hæmostatic than cold water or ice-water, or else lemon-juice. A solution of iron perchloride is an excellent hæmostatic, he says, but it cauterizes the neighboring region and prevents the physician from distinguishing the diseased spot.

When the hemorrhage finally stops and the bleeding-points are found, they must be cauterized. There is no harm in cauterizing somewhat around the bleeding spot; on the contrary, the indications are to burn the entire vicinity. In cases of arterio-sclerosis the author has been obliged to cauterize the entire pituitary surface as far as the choana as the iodoformed strips were removed one after another. These cauterizations should be repeated several times, and every suspected place covered anew with chromic acid. These tampons of iodoform gauze are not disagreeable to the patient, and they may be left for two days. Before removing them the nose should be washed with warm water, and the strips of gauze should be drawn away very gently in order to prevent the hemorrhage from breaking out again, and any suspected places immediately cauterized, even at the risk of touching a healthy spot. The patient may take wine and iron, but should avoid coffee, tea, and effervescing drinks. All internal medicines are useless and harmful.

TREATMENT OF TUBERCULOSIS WITH YEAST NUCLEIN.

VAUGHN thus concludes a brief paper in the *Medical News* of December 22, 1894, upon this topic.

1. In pulmonary tuberculosis which has progressed to the formation of cavities, nucleinic acid from yeast will not produce a cure. Unfortunately, these are the cases that we are expected to cure. These are the cases in which any proposed remedy for the disease will be tried, and it should be stated most emphatically that no claim is made by the author for nucleinic acid in these conditions.

2. Even when the tuberculosis is of long standing, and when the extent of tissue involved is great, so long as secondary infection with pyogenic germs has not occurred, the proper use of the remedy may retard the progress of the disease.

3. In initial cases of pulmonary tuberculosis, when there is no secondary infection, and when the area involved is small and the resistance of the patient not too much reduced, the proper employment of this agent may produce at least a temporary cure. We say "at least a temporary cure" because none of these cases have been under observation a sufficient length of time for the writer to say that the bacilli will not reappear.

4. In the few cases of urinary tuberculosis that are reported in this paper the results have been remarkably satisfactory.

The results so far encourage continuation in the work. There is no reason for supposing that the nucleinic acid obtained from yeast has any properties superior in a curative way to the nucleins contained in other substances. The number of nucleinic acids is limited only by the kinds of cells in existence, and the author compares others with this one.

The early detection of tuberculosis is now a possible, not to say an easy, thing, but it is a lamentable fact that to many practising physicians it is an impossible thing. This will be the case so long as our most popular and most numerously attended medical schools fail to give any adequate individual instruction in bacteriology. The sputum of every patient who raises any should be examined for tuberclebacilli, and urinary sediment containing pus, blood, or much epithelium should be similarly tested.

The author is convinced, especially from his experiments on animals, that nucleinic acid, improperly used, may do harm. It acts by stimulating the organs that elaborate the polynuclear corpuscles, and these may be overstimulated. Nucleinic acid fails to be of service unless these cell-forming organs respond. They may fail to respond on account of lowered vitality, or they may be paralyzed, as it were, by an excessive dose of stimulant. The agent is not one to be used indiscriminately. Already some physicians are supplying tuberculous patients with hypodermic syringes and solutions of nucleinic acid, and telling them to go ahead and treat themselves. Such practice as this may make the study of this subject result in a misfortune.

AFTER-EFFECTS OF ANTITOXIN.

The *Boston Medical and Surgical Journal* of December 20, 1894, states editorially the fact that two cases of an urticaria-like eruption, attended with fever, pain in the muscles and joints, and enlargement of the inguinal glands, have been reported by Cnyrim following the use of antitoxin. Both the cases occurred in assistant physicians of the Hospital Zum Heiligen Geist at Frankfort.

In the first case the antitoxin had been administered for a mild attack of diphtheria, in which the Klebs-Loeffler bacilli were found. The temperature fell to normal in three days and the throat cleared up, but the patient in the next few days suffered from marked prostration. Five days after the temperature became normal, the eruption (beginning at the site of the injection) and the muscular and joint pains were severe, the temperature high, and two weeks elapsed before the patient was able to go home.

In the second case the antitoxin was injected as a matter of precaution, although bacteriological examination of the throat failed to show Klebs-Loeffler bacilli, and the case was considered one of slight catarrhal angina. Two days after the injection there was loss of appetite, sleeplessness, weakness, and malaise, soon followed by fever and general glandular swelling, and on the eighth day by an urticarial eruption. The patient was unable to go home for three weeks.

The coincidence in time and exact similarity between these two cases lead Dr. Cnyrim to conclude that they are without doubt aftereffects of the antitoxin. It is noteworthy that both these cases were rather serious, the temperature reaching 39.5° and 39.6° C. respectively, both patients affirming that they would much rather go through a mild attack of diphtheria than the disease from which they were suffering. Dr. Cnyrim also thinks that such an attack would be a most serious compli-

cation in a child already weakened by diphtheria. It will be remembered that in the *Journal* for December 13, 1894, the occurrence of two cases in Berlin similar to those just described was noted. Although all four of the cases recovered, they were serious enough to show that diphtheria antitoxin may produce some unpleasant results. In the Frankfort cases the Behring antitoxin was employed, and the injections were made under most careful antiseptic precautions.

HEMORRHAGE FOLLOWING TONSILLOTOMY.

PRICE-BROWN (*Canadian Practitioner*, December 15, 1894) reports in detail three cases coming under the above title. He states that he has never met with hemorrhage of a severe character, either primary or secondary. Moreover, the old idea of the possibility of wounding the internal carotid artery by tonsillotomy has been demonstrated by Heryng and Linhart to be incorrect, the vessel being situated behind the posterior pillar instead of external to the tonsil. He employs Mathieu's tonsillotomes, using the larger or smaller instruments as the size of the growth would indicate. He presses the instrument well into position to insure a sufficient hold for the needles.

In summing up the full number of recorded cases, the author has been able to find, including his own, about sixty-four. Of these, three were children, aged respectively six, eight, and ten years. In two of them hemorrhage did not occur until four and four and a half days after operation. In the other, although commencing early, it did not cease until five days after excision of the tonsil.

In sixty-one cases, all adults, with three or four exceptions, the hemorrhage occurred, at the outside, within two days after tonsillotomy. In the exceptional cases the hemorrhage could be traced individually to over-exertion of one form or another.

Granting that the surgeon can have a judicious oversight over his cases, the lesson taught seems to be:

That tonsillotomy is a safe operation whenever necessary, irrespective of the age of the patient. That in young children the period requiring the greatest care after operation is between the third and the sixth days. That in adults, after operation, the patient should be kept under observation for from thirty-six to forty-eight hours, subsequent to which time a warning against possible contingencies may be all that will be required.

THE TREATMENT OF FURUNCULOSIS BY COLCHICUM.

BROCO (*Journ. de Méd. et de Chir.*, quoted by *Lyon Médical*, No. 9, 1895) states that when gouty patients who are neither diabetic nor albuminuric develop furunculosis, extract of colchicum in doses of ½ drachm to 1 drachm daily often gives surprisingly good results. He reports the case of a man forty years old who suffered for several months with most rebellious furunculosis. In five days of colchicum treatment the disease was arrested. On stopping the drug new furuncles promptly appeared. On resuming again rapid cure was accomplished. This treatment was stopped and tried again repeatedly with the same results till the patient, finally convinced of its efficacy and continuing it, was entirely cured.

SIMPLE TREATMENT OF GANGLION.

DUPLAY (quoted by *Lyon Médical*, No. 9, 1895) describes a simple, safe, and invariably successful treatment for this troublesome affection. This consists in the injection of a few drops of iodine into the cyst. Such injections must, of course, be practised under antiseptic precautions, the needle being driven in at the point where the cyst is most prominent, the skin having first been drawn aside so that a valvular opening is made. The cyst is not previously evacuated, but the iodine is driven directly in. A small antiseptic dressing is applied with a bandage. Cure is accomplished in five or six days. Sometimes in large cysts a second injection is necessary.

SURGICAL TREATMENT OF PRIMARY TUBERCULOSIS OF THE GENITO-URINARY ORGANS.

WATSON (*Boston Medical and Surgical Journal*, February 7, 1895) holds that in these cases the outlook is not hopeful for surgical interference. The local treatment of the bladder when it is the seat of the tuberculous process is for the most part unavailing. Dilatation of the female urethra sometimes gives short periods of relief, but often fails to do so. Deep urethral injections are injurious. Long-continued drainage through the perineum fails to relieve. Suprapubic cystotomy for relief of vesical tenesmus is markedly successful, especially when supplemented by applications. Curetting and the application of iodoform to the ulcerated mucous surface of the bladder afforded very considerable relief.

GUYON has reported two cases of what he considered to be primary tuberculosis of the bladder, which he treated by suprapubic cystotomy and by burning the ulcerated surfaces with the actual cautery. One of these he reported as cured, the bacilli having disappeared from the urine, and the patient being freed from all symptoms one year later. The second patient did well, but the bacilli did not disappear.

FACKLAM collected one hundred and eight cases of tuberculosis of the kidney, in twenty of which nephrotomy was performed and in the remainder nephrectomy. Thirty-eight cases out of seventy-two were diagnosed correctly before operation. The following conclusions are drawn from a study of the operations and their results. The mortality attending the operation of twenty nephrotomies is about sixty per cent. Of the eight patients who recovered, four only are claimed as cures. This is well established in but a single case. Five had had the disease several years previously. Two of them developed acute miliary tuberculosis immediately after the operation. One died of uræmia, one died of acute septicæmia, and in the remainder the disease was far advanced or had involved other organs besides the kidney.

From this evidence the author concludes: "Thus far the results of nephrotomies in cases of renal tuberculosis are not favorable."

In sixteen additional cases in which nephrotomy had been performed without improving the patient's condition, nephrectomy was done, resulting, in ten of them, in very marked improvement.

Nephrectomy was performed in eighty-eight cases, with a mortality of twenty-eight per cent. In thirteen the operation was performed through an abdominal incision, with four deaths (about thirty per cent. mortality). In seventy-five the operation was extraperitoneal, twenty-one deaths resulting (or about twenty-eight per cent. mortality); but of these latter, sixteen can be said not to have died as a direct result of the operation, whereas the four deaths resulting from the abdominal operation were all due to shock, and followed immediately upon the operation.

Of the cases which recovered from the operation, sixty-two (or seventy per cent.) are reported as wholly cured or greatly relieved, but of these only fourteen had been under observation for over one year after the operation. Of these fourteen cases, five are entirely cured, so far as can be seen; the rest are not wholly free from evidences of the disease.

VIGNERON'S statistics correspond very closely with those of Facklam. He is opposed to early surgical interference in renal tuberculosis. Nephrotomy gives relief in many cases, and exceptionally accomplishes radical cure. This operation is indicated when the patient is suffering, is losing ground, and when both kidneys are affected. It is essential freely to open all pus-cavities, and to remove so far as possible all cheesy masses, to drain freely, and to suture the edges of the renal wound to the lumbar incision, so as to allow the interior of the kidney to be easily cleansed and dressed. If these steps are not taken the operation is useless.

The mortality in abdominal nephrectomies he gives as very nearly twenty-seven per cent. In lumbar nephrectomies between thirty-five and forty per cent. He advises secondary rather than primary nephrectomy, since this operation shows a decided decrease in mortality. The best time to choose is a few weeks after nephrotomy, as soon as the patient's general condition has improved. Nephrectomy should be considered only in those cases in which the disease is unilateral. Renal palpation and the endoscope will in most cases make a decision perfectly possible.

SEPTICÆMIA FOLLOWING CONFINEMENT OR MISCARRIAGE.

ROSE (*New York Medical Journal*, vol. lxi., No. 7) describes what he believes to be a new treatment for septicæmia following confinement or miscarriage. This consists in bringing the hips to the edge of the bed, introducing a bivalve speculum, and, with borated cotton in a Bozeman's long dressing forceps, wiping out thoroughly the whole uterine cavity until the cotton comes away odorless and clean. He then dips a bunch of cotton in iodized phenol and daubs it over the whole interior of the uterus. He states that this treatment has never caused pain nor the slightest unpleasant symptoms of any kind.

PRESCRIPTIONS.

Local anæsthesia, lasting about five minutes, can be quickly obtained by using the following mixture in a spray:

℞ Menthol, ʒss;
Chloroform, ʒv;
Ether, ʒi;
M. ft. nebula.
Sig.—To be used with a hand-spray.

For chapped hands and face, or for fissured or sore lips, a useful application is Friar's balsam. It can be ordered thus:

℞ Tinct. benzoin. comp., ♏x;
Alcohol, ʒii;
Aq. rosæ, ʒss;
Glycerini, ad ʒi. M.

Sig.—Apply to chapped surfaces at night, after they have been washed with soap and warm water and thoroughly dried.

Hydrocele is treated by Neumann, of Vienna, by withdrawing the fluid in the ordinary way with a trocar and canula, and then leaving the latter in the hydrocele sac to act as a drain. A slightly compressing bandage is applied over a thin layer of cotton-wool. The canula is removed on the second or third day. Dr. Morgan Vance has developed this idea by completely transfixing the hydrocele sac, passing a fenestrated drainage-tube through the canula on withdrawal of the trocar, and, finally, removing the latter and leaving the rubber tube *in situ*. For two or three days the sac is irrigated through the tube with some mild antiseptic. The tube is shortened at the end of three days and then removed. A general anæsthetic is not required, and the method is simpler than the open incision, which is at present the favorite method.—*Practitioner*, February, 1895.

IMPROVED METHOD OF DEODORIZING AND CLEANSING CATHETERS.

The following method is advocated by COUSINS (*Medical Press and Circular*, March 6, 1895):

The catheters are made with solid metal points, terminating in flat surfaces within the tubes, just above the first perforations. The antiseptic method recommended is divided into two stages,—(1) steaming the catheters, and (2) polishing the interior of the tubes.

The deodorizing of catheters can be very rapidly and effectually performed by the action of steam. The apparatus consists of a boiler having a capacity of about three pints, and capable of bearing a pressure of eighty pounds to the square inch. It can be heated by a spirit or gas-jet in about fifteen minutes. The steam-pipe is connected with a circular tube fitted with projecting terminals, and these are adapted to hold a complete set of catheters. Steam-cocks are arranged on the steam-pipe to regulate the discharge of steam, and a tray is placed beneath the instruments to collect the condensed water. Steam-sprays—the relics of early antiseptic days—are still to be found in many hospitals, and these can very easily be converted into catheter deodorizers. Four tapering tubes can be attached to them capable of holding three catheters of different sizes, and with this arrangement four catheters can be steamed at the same time.

As soon as the deodorizing process is finished the instruments should be wiped dry with a soft leather, and their insides polished with the steel stilettes. The point of the stilette consists of a flat metal disk, which exactly fits the bore of the instrument; the stem is flexible, and terminates in a strong handle.

By the friction of the disk the interior of the tube can be perfectly polished in a few minutes.

The whole process is so extremely simple that any hospital nurse can carry it out and completely deodorize a set of catheters in half an hour. Gum-elastic and vulcanite catheters with solid points can be obtained, and are readily cleaned by the same process, but a polishing stilette must be selected which does not quite fit the bore of the tube.

SURGICAL TREATMENT OF INJURIES OF THE HEAD.

As the result of his investigations on this subject, PARKER (*Journal of the American Medical Association*, February 16, 1895) reaches the following conclusions:

In any case of doubt as to the character of a head injury, explore by incision if necessary.

In the case of wounds, especially the smaller and punctured, enlarge them for exploration and cleansing.

In all cases of fracture, depressed or fissured, operate, elevating the depression and exploring the fissure for a depression of the inner table, which so often occurs.

Leave principal fragments of bone after elevation, if surgically clean, even if entirely detached from the dura mater and pericranium, thus averting cerebral hernia, vertigo, and other cerebral disturbances.

All these operative measures should be conducted under the most rigid aseptic and antiseptic precautions.

THE TREATMENT OF FROST-BITE.

HERMANCE (*Philadelphia Polyclinic*, March 9, 1895), as a result of treatment applied to thirty cases, draws the following conclusions:

First. That of the drugs employed, ichthyol gives most relief from pain, and seems to protect the part as well as other applications.

Second. That when the parts become raw and exposed, acetanilid ointment is by far the best dressing, preventing suppuration and promoting a quick granulation and rapid formation of new skin.

Finally. That there are a certain number of cases in which the destruction has been so great, and the disturbance of the vaso-motor mechanism so serious, that treatment fails, and nothing can be done except to wait until nature throws off the destroyed tissues, assisting in the mean time by keeping the parts clean.

SURGICAL TREATMENT OF HYDATID TUMORS.

RUDALL (*Australian Medical Journal*, January 20, 1895) thus discusses the treatment of hydatid tumors: The tendency to treat hydatid tumors by a radical cutting operation, rather than by tapping, aspirating, injecting, or electrolysis, has become very pronounced during the last few years. This is explained partly by the frequent failure of the milder operations and partly by the much greater success now generally obtained in surgical operations involving the pleural and the peritoneal cavities.

At times serious and threatening symptoms ensue from aspirating or injecting a hydatid cyst, such as vomiting more or less severe and persistent, collapse, and local peritonitis; and records show that in some instances simple tapping with a capillary trocar has proved fatal.

The surgeon should not tap until everything is in readiness for the major operation. Success is rarely, if ever, to be expected from simple tapping when the cysts are suppurating or contain daughter-cysts. In such cases two methods are chiefly in use: (1) free incision of the cyst with evacuation of its contents, and removal of the cyst itself, if it can be got away, as it generally can be; and (2) tapping with a large trocar and canula, leaving the latter in the cyst for many hours or some days.

In the operative treatment of hydatids, however, the success is in direct ratio with the thoroughness of evacuation by the shortest route to the surface of the body.

POST-NASAL ADENOIDS.

In practice, WILSON (*Medical Chronicle*, February, 1895) adopts the following routine system: In adults, or children old enough not to be alarmed by the apparatus, he gives nitrous oxide and ether to begin with, as by it deep anæsthesia can be most quickly and safely induced. During the operation the anæsthesia, if necessary, is kept up with chloroform and, if taken well, continued throughout the operation. If there is reason from the feeble condition of the patient to expect faintness, he changes to ether as soon as the patient becomes semi-conscious, and continues with it. If there is any delay in inhaling the chloroform from feeble respiration, he changes at once to the ether. In the same way, if the ether causes irritation of the throat and excessive secretion of mucus, there being no contra-indications, it is replaced by chloroform.

As regards the position, it should be one which is conducive to the safe administration of an anæsthetic, and one which will have no tendency to aggravate shock. This latter is especially necessary, as the subjects of post-nasal adenoids are generally feeble. It must also be one which will allow the operator free access to the pharynx and permit the rapid escape of blood, without there being any danger of it or detached adenoids gravitating into or being sucked into the larynx. Further, the position ought to be one which will facilitate the treatment of any excessive hemorrhage.

The positions employed are: (1) The patient sitting up in a chair, with the head bent forward. (2) Sitting up in a chair, the head retaining its usual position in regard to the trunk. (3) The patient upon his side, the cheek resting upon the pillow. (4) Upon his back, the head being only slightly extended. (5) Upon his back, the head being completely extended, and preferably hanging over the end of the table.

The first two positions commend themselves to the operator as being the natural positions in which the parts are seen and examined. They do not, however, fulfil the requirements of the anæsthetist. The upright position, though safe for nitrous oxide and ether, is not conducive to the safe administration of every anæsthetic; and, above all, tends powerfully to aggravate shock. It is not desirable in the event of much hemorrhage, as the chances of blood entering the larynx are great, and when the head and shoulders are thrown forward the patient is placed in a very unstable and wobbling position, manipulations about the throat are made very difficult, and it is almost impossible to get light thrown on the part. Though it is adapted for excision of tonsils alone, it is not really a convenient position for the removal of adenoids; the operator has to work with his hand turned upward and supinated, which is a strained position and one not used in the performance of any other delicate work.

The third position—on the side—is inconvenient for the operator; and though it allows the blood to escape freely, it has several objections.

The most advantageous position of all is with the patient upon his back, the head fully extended, with the vertex supported on the table, or the head hanging over the end of the table. This method of placing the patient was in vogue at the Manchester Royal Infirmary for mouth and throat operations about, if not before, 1882, and on the introduction of the operation for post-nasal adenoids, this position was naturally adopted. Since then it has been used regularly at all the Manchester hospitals, and has given the most satisfactory results. The first to call attention to it in print was Mr. Mitchell Banks, of Liverpool, who, about 1882, advocated its use in the removal of nasal polypi. The writer has had a very extensive experience of it, not only in post-nasal adenoids, but also in operations for the removal of malignant growths in the region of the mouth and pharynx, attended in several instances with excessive hemorrhage, and in all cases, in every respect, it has proved most convenient. It possesses the following advantages:

It places the patient in the safest position for the administration of any anæsthetic, and in one which is directly antagonistic to the production of shock. It is the most stable position, and the patient remains unsupported in the same situation, is not liable to roll about, and any anæsthetic difficulties which might arise can be treated without moving the patient. Further, with the head extended and the mouth open, respiration is most easily performed. It gives the operator a good view of, and free access to, the pharynx, both to the tonsils and to the adenoids. The tonsils can be removed and then the adenoids dealt with without changing the position. As regards the adenoids, the seat of operation is directly under the surgeon's hands, and all necessary manipulations can be performed with the hands in the pronated position, the customary position taken by the hands in the performance of all delicate manipulations, surgical or otherwise. All operative measures, whether digital examination of the parts or using scoops or forceps, can be most easily carried out in this position. As regards hemorrhage, the advantages are most evident. With the head fully extended, the nostrils and the upper incisor teeth are placed on a lower level than the aperture of the larynx. It follows, that no matter how profuse hemorrhage may be, the blood will flow out of the nostrils, or, in the event of these being obstructed, over the teeth, before it reaches the level of the larynx. In cases of only slight bleeding the blood gravitates into the pharynx and the cup formed by the hard palate, and leaves the air a free passage to the larynx. It is possible for respiration to go on comfortably with considerable hemorrhage. Towards the control of hemorrhage the patient could not be in a better position. Either tonsil can be readily grasped between the thumb and fingers of the hand, and pressure applied, or a sponge on a holder can be slipped behind the soft palate, and the naso-pharynx plugged, without in the least interfering with respiration. To compress the tonsil, the thumb, thrust into the mouth, is placed over the cut tonsil, while the fingers are placed externally behind the jaw, over the situation of the tonsil, and the parts compressed between the fingers and thumb. The detached growths remain in the naso-pharynx, and there is no risk of them slipping into the larynx.

This position has been objected to on the ground that the congestion from the dependent position increases the hemorrhage. This is probably true to some slight extent, but the greater facilities for the arrest of hemorrhage afforded by the position more than counterbalance this. It must not be forgotten that the amount of hemorrhage depends very largely upon the method of operating. If the operation is rushed through quickly and roughly, the operator's aim being to finish as speedily as possible for fear of hemorrhage, there will be, as a rule, a good deal of bleeding. If, however, the operation be performed quietly and deliberately, and time be allowed between the several stages for the arrest of hemorrhage by the pressure of sponges, etc., there need be very little blood lost. In some cases the weight of the head dragging on the muscles arising from the chest appears to fix the chest and hamper respiration; this can be avoided, where present, by supporting the head. Care must be taken in sponging out the pharynx. If done hurriedly it is easy, with the head dependent, to push the sponge against the under surface of the tongue and tear the lingual frænum.

It has been advanced against operating with the head dependent, "that it makes a great mess." The amount of mess is regulated entirely by the method observed in the performance of the operation. If the patient's hair be protected by a damp towel, and the operation be performed deliberately, the blood being sponged up as it collects in the pharynx or hard palate, and encouraged to flow out by the nostrils, there need be no mess.

TREATMENT OF PENETRATING WOUNDS OF THE CHEST.

In the *Revue de Chirurgie* for January 10, 1895, there appears an interesting article on the conduct of the surgeon, in the case of penetrating wounds of the chest by side-arms, by HUGUET and PERAIRE, who quote numerous observations by Terrier and Lucas-Championnière, and by themselves.

The *code duello* is so much in vogue in France that even in the "piping times of peace" there is abundant opportunity for the study of this class of wounds.

The authors make very clear by observations that early removal of such patient from the field is extremely dangerous, unless every precaution be taken to immobilize the chest-wall so far as possible. The following is a summary of their conclusions:

1. There is absolute necessity of treating the wounded at the place; the gravity of the concussion communicated by transportation, whether the journey is long or short, gives even stronger reason, as treatment may be performed in the carriage. If it is necessary to transport the wounded to a distance, the inevitable jolting of the vehicle will produce hæmoptysis or accentuate it, and this may induce the death of the patient.

2. The state of syncope favoring hæmostasis may be respected in a certain degree, but it may become necessary to make moderate subcutaneous injections of ether, to the end that the depression may not become too considerable. It is in such cases that, above all, we may have recourse to caffeine and to hypodermic injections of artificial serum.

3. The treatment of penetrating wounds of the chest by ordinary means (cold applications and iced drinks, injections of ergotin, compression, antisepsis, ligature of vessels, suturing of the wound) appears to us insufficient in many cases, unless immediately subjected to as absolute immobility as possible. Thanks to this absolute rest which results from forced immobilization of the entire pulmonary apparatus, there is obtained a condition from the outset which alone may insure success.

4. It goes without saying that this immobilization does not exclude the ordinary means mentioned.

5. In case of hæmothorax consecutive to a lesion of a great vessel there is no urgent need; the phrase armed neutrality never finds a better application than in such circumstances. It is necessary to be guided by the symptoms and, above all, by the complications, to come to a determination. It is not necessary to resolve upon thoracentesis until the effusion becomes too considerable and the dyspnœa excites serious fears for the case.

6. The indications are, in all cases of penetrating wounds of the chest, to banish the permanent dressing; to make an elaborate dressing of the wound, being restricted to the necessities of the case, and to always avoid jolting or concussions.

The treatment recommended must commend itself to all military surgeons, notwithstanding this subject has furnished food for discussions from time immemorial.—*Journal of the American Medical Association*, March 9, 1895.

REMOVAL OF THE UTERINE APPENDAGES IN THE TREATMENT OF UTERINE MYOMA.

The history of Dr. Cullingworth's treatment of his twenty cases forms an important contribution to gynæcology. The records of the cases are given clearly and in sufficiently full detail for the reader to form his own judgment on the diagnosis and on the treatment, in the "St. Thomas Hospital Reports," vol. xxii., 1894.

One of the expressions in the description of the operations which frequently occurs is this: "No douche or deep sponging was used, and the abdomen was closed without drainage." In spite of the absence of drainage, as will be seen, the results, so far as mortality and the ultimate objects to be sought are concerned, are satisfactory.

All the patients recovered with the exception of two, who both appear to have died of intestinal obstruction. Deducting these cases, and some others on account of the recent date of the operation, fourteen of the twenty cases are available for studying the ultimate effects of the treatment. The results are claimed to be very satisfactory in 78.5 per cent., fairly satisfactory in two cases, and unsatisfactory in one case. In no case in which pressure-symptoms existed before operation did the operation fail to give relief. Menorrhagia was present in eighteen out of the twenty cases before operation, and in one case it persisted. The conclusions arrived at by Dr. Cullingworth, from his own experience, are as follows:

That it affords an almost certain means of relieving all the more dangerous symptoms in cases in which active treatment is necessary, and in which removal of the tumor or tumors is either impracticable or likely to be attended with special difficulty or grave risk.

That it is unsuitable in cases where the

tumors have attained a very large size, or have become œdematous, or have undergone cystic or other degenerative change.

That it is peculiarly applicable to those cases in which the tumors are for the most part intra-pelvic, and in which operative interference is required for the relief or prevention of dangerous pressure-symptoms.

That its field of usefulness is likely to become curtailed in proportion as the technique of abdominal hysterectomy improves and the mortality of the latter operation diminishes.

That although, in experienced hands, its mortality is not high, it should never be regarded or spoken of as a slight or minor operation.

That it is impossible to know beforehand whether it will be an easy or a difficult or even a practicable operation.

That the relief is not generally so prompt, or convalescence so free from interruptions, as in an ordinary case of ovariotomy, or even of abdominal hysterectomy.

That before being submitted to the operation a patient should, in the interests both of herself and the operator, be made fully aware of the uncertainties that specially attend it.—*Medical Chronicle*, February, 1895.

SURGICAL TREATMENT OF GRAVES'S DISEASE.

According to the Berlin correspondent of the *Medical Press and Circular* for January 30, 1895, Dr. F. LEMKE, of Hamburg, has had the opportunity of treating a series of more or less serious cases of Graves's disease by operation, the results of which he has published in a recent number of the *Deut. Med. Wochenschrift.* All the cases operated on were alive at the time of writing, with the exception of one woman, who died of influenza three months after operation. In all, the more important symptoms were relieved,—the exophthalmos, the thyroid enlargement, the excessive nervous unrest, the intolerable trembling of the hands, all disappeared,—and in two the tempers were noticeably improved. The operation consisted in partial removal of the thyroid gland. The author thinks the operation, as performed by himself, is not so difficult as it is thought or as it used to be. As soon as the skin, muscular structure, and fascia are divided for a distance of four centimetres in the line of the inner border of the sterno-mastoid, the struma is seized with Spencer Wells's pressure-forceps and drawn forward. Its separation from its surroundings is in this way simple and bloodless. It is then ligatured and cut away. The patients were quite recovered by the fourteenth day. The cosmetic results were very striking. Eight histories of cases are related by the author.

Professor Garré has proceeded by another method in his treatment of enlarged thyroid. During two and one-half years he treated one hundred and fifty cases at the Tübingen Poliklinik by injections of iodoform. The results of the treatment were so "surprisingly favorable" that he believes he can recommend it, and the more so as it can be carried out whilst the patients are going about. The solution he has tried has been: iodoform, 1 part; ol. olivæ and ether sulph., each 7 parts. The fluid must be kept in the dark. When the original bright yellow transparent fluid has become muddy and dark from decomposition of the iodoform, it is no longer fit for use. The part of the thyroid to be injected is fixed by the second and third fingers of the left hand and at the same time pressed back against the spine. Care being taken to avoid veins, the canula of an ordinary subcutaneous syringe of a capacity of one cubic centimetre is then plunged into the tumor. Whilst the needle is in the growth it is held tightly and the patient tries to swallow. If within, the canula moves upward and downward during the process. The contents of the syringe are then injected, a small piece of plaster being placed over the puncture on withdrawal. The injection is said to cause at most a slight burning pain, due, no doubt, to the ether. Sometimes the patients complain of pain in the ears or teeth, which soon passes off. Others complain of the disagreeable taste of the iodoform for days. No other accompanying ill effects have been observed. He considers the injection to be absolutely free from danger. As a rule, the injections have been repeated every two to five days. The number required have varied from three to sixteen, the average being seven.

The final results were determined in eighty-seven cases. In eighty-one there was a diminution of the circumference of the neck of from two to seven centimetres; in eighty-six a slighter decrease,—*i.e.*, two centimetres and under; in ninety per cent., therefore, a favorable result was obtained. In eight cases there was no abatement, and in two actual increase took place. He considers the simple hyperplastic struma and the diffuse nodular form to be the most suitable for this treatment. The vascular form is also suitable, but the treatment will have to be continued longer. As many as nineteen injections will be required.

PROSTATIC ABSCESSES.

CASPER, at the meeting of the "Hufeland'sche Gesellschaft," November 22, 1894 (*Allg. Medicin. Central Zeitung*, No. 97), presented the following treatment:

The presence of pus, fever, and retention are indications for immediate interference. The fact that occasionally spontaneous retrogression and absorption occurs, as shown in a case of the author's that refused operation, does not militate against the general rule.

Three methods are available: the abscess can be opened from the rectum; or from the perineum; or, following Dittel, the intestines may be separated from the gland by a pre-rectal incision, and the prostate then incised. Our choice depends on the nature of the case. If suppuration is abundant and the abscess prominent, incision through the rectum or perineum is indicated. Casper did the former operations eighteen and the latter three times. In the latter cases there was a large perineal projection, the skin over which was reddened and thinned.

To reach the deeper-seated abscesses from the perineum would mean the performance of a median section, and this is the less justifiable as there is the greatest danger of dividing the ejaculatory ducts and causing sterility.

If the tumor projects mostly into the rectum the opening should be made from the cavity. Dittel's operation is suitable for the remaining cases, in which neither perineum nor rectum shows a marked fluctuating tumor.

The objections that have been made to the rectal operation are that it cannot be done antiseptically, and that there is danger of hemorrhage, pyæmia, and fistula formation. These may be avoided by the following measures: The narcosis must be deep, to overcome, as far as possible, sphincteric resistance. The trivalve speculum gives a suitable and well-exposed operation field. After thoroughly cleansing and irrigating the latter, the rectum above is thoroughly closed with an iodoform gauze tampon. An incision is then made down into the gland, and by bilateral pressure the pus that it contains is squeezed out. A drainage-tube is then put in, which projects out of the anus. The rectum is irrigated three or four times daily. In three or four days the drainage-tube is removed and the wound allowed to heal.

Hemorrhage is not to be feared, as the operator has an open field. Fever and other complications occurred in none of the writer's cases. The fistula heals spontaneously, or can easily be closed by operative procedure. Pyæmia may be excluded, since after the lapse of several days infection can hardly occur. Before the operation laxatives are to be given, and after it opium.

Little can be said of the treatment of periprostatic abscesses and phlebitis paraprostatica. The former calls for rectal incision; the latter leads to pyæmia, and must be treated in the usual symptomatic and fruitless way.—*International Journal of Surgery*, March, 1895.

TREATMENT OF LEUCORRHŒA.

SLOCUM (*Philadelphia Polyclinic*, March 9, 1895), in the treatment of leucorrhœa in young unmarried women, has had good results from the use of cantharides. The formula he employs is as follows:

℞ Tincture of cantharides, 96 minims;
Tincture of ferric chloride, 160 minims;
Diluted phosphoric acid, 160 minims;
Syrup of lemon, 2 fluidounces;
Water, sufficient to make 4 fluidounces. M.
Dose: 1 teaspoonful, in water, after meals.

STAB WOUND OF THE STOMACH.

ROSS (*Montreal Medical Journal*, March, 1895) was called to see a patient twenty-four hours after she had been ripped up with a jackknife. The stomach was protruding and wounded. The stomach wound was closed. The parietal wound was enlarged so that the stomach could be returned within the abdominal cavity, and although there appeared to be considerable bloody effusion, the operator did not think it necessary to wash this out. The parietal wound was then closed without drainage. The only anæsthetic used was a hypodermic injection of morphine, gr. $\frac{1}{4}$, and atropine, gr. $\frac{1}{100}$. Two and a half hours were consumed in the operation. This patient recovered without incident.

THE CURABILITY OF CANCER WHEN THE LYMPH-NODES ARE INVOLVED.

It is well established that when the glands are infected the chances for complete eradication of the disease are much diminished, and some authorities appear to think that operations in such cases cannot do more than prolong life. Gross analyzed one hundred and thirty-six cases of amputation of the breast for carcinoma, in which recurrence took place, finding that in forty-three cases in which the glands were free from infection at the time of operation, the average duration of life from

the beginning of the disease was 52.7 months; but in ninety-three cases in which the glands were involved, the duration was only 39.3 months. In the first set recurrence appeared in eight months on the average, while in the second it occurred in less than two months. We should note, however, that Gross's collection of cases was made from those published up to about 1885, and gave only 11.83 per cent. of cures, with a mortality of fourteen per cent., results which have been so much improved of late years that in a collection of cases running up to the end of 1892, the writer of the above, CURTIS (*Medical Record*, February 16, 1895), found a mortality of only six per cent., with over twenty-two per cent. of cures; and some individual operators have even better results than these. Poulsen, who may be quoted as more nearly representing modern results than Gross, found that twenty-two per cent. of all his cases (with and without glandular infection) remained well for three years or more, while of forty-three cases in which microscopic examination showed that the axillary glands were involved, only four (9.3 per cent.) were well at the end of that time, and in two of these cases the examination had shown that the infection was minimal in extent. These figures clearly demonstrate how much the danger is increased when operation is delayed until the glands are invaded.

Curtis concludes his article as follows: The fact should be emphasized that extensive operations should not be opposed merely because they are extensive. Any limb or organ should be removed if life can be saved thereby, the only limit to be placed upon the sacrifice being the natural one fixed by the willingness of the patient; and for most men no sacrifice is too great, even when it secures only a few months' delay of the inevitable end. The writer's plea is merely to individualize the cases, and to suit the treatment to the form of disease which may be found and to the particular conditions of the patient. Extensive disease necessitates extensive operations; and in any case the operation must be so planned as to remove every particle of diseased tissue, for only when this is accomplished can a cure be effected. Thorough operation will, as a rule, require the removal of the original tumor, the lymph-nodes of the nearest glandular region, and all the cellular tissue between, if possible, in one mass,—for instance, the mamma, pectoral fascia, fat on the edge of the pectoral muscles, and axillary glands; the penis, inguinal glands, and intervening subcutaneous fat; and the tongue and submaxillary glands, with all the intervening cellular tissue in which the vessels run. In such organs as the tongue, when the disease has not crossed the median septum by direct extension, it is often possible to leave one lateral half, owing to the fact that each half has a distinct vascular and lymphatic system. In the breast, however, it is seldom safe to make partial excisions, because the disease spreads so readily, and more particularly because the whole breast is likely to be in a condition which will surely end in the development of the disease. This does not justify, however, the proposition to remove both breasts at once, because, it is claimed, if one is diseased it is probable that the other has also reached a precancerous stage when it may be attacked at any moment. That this claim is unfounded is shown by the rarity of the occurrence of malignant disease in both breasts, either simultaneously or consecutively,—according to Gross, less than three per cent. of the cases showing bilateral disease. The necessity for radical operations—operations which remove all diseased tissue—cannot be questioned, no matter how extensive they may be; but it is not necessary to be extravagant in order to be thorough, and it is possible in certain cases to obtain lasting cures by conservative methods which will spare the patient unnecessary mutilation.

REDUCTION OF DISLOCATION OF A DORSAL VERTEBRA.

ARMSTRONG (*Montreal Medical Journal*, March, 1895) exhibited a patient in whom he successfully reduced a dislocation of the dorsal vertebra. The patient was brought into the hospital with what appeared to be a fracture and dislocation of the eighth or ninth dorsal vertebra. The accident occurred in the following way: the man, driving under a gateway on top of a load, got himself jammed between the latter and the arch. There was no evidence of destruction of the cord at that time; he could move his legs, etc., and sensation seemed normal; but his body was doubled up, bent much forward, and he was unable to straighten himself. A depression was observed at the point of injury, and the supraspinous ligament seemed broken. Armstrong put the patient under an anæsthetic, had a large pillow placed under his abdomen, and, with the assistance of two men, attempted extension and reduction. The dislocation was reduced almost at once, the two vertebræ coming together and the depression and deformity disappearing.

The patient felt much relieved on coming out of the chloroform, and seven weeks later no bad symptoms had developed.

A CASE OF PERFORATED GASTRIC ULCER.

KIRKPATRICK (*Montreal Medical Journal*, March, 1895) reports the case of a girl admitted to the hospital suffering from pain in the abdomen and shoulders. This pain started two days before and was accompanied by vomiting. The abdominal pain was particularly acute in the epigastric region. The patient was not vomiting at the time she was first seen. There was tenderness in the epigastric and innermost portion of the right hypochondriac regions. The belly was tympanitic. Cœliotomy was performed. The anterior wall of the stomach was slightly adherent to the parietes. The adhesions were broken down, gas escaping, and the lesion was found in the anterior wall of the stomach, a little to the right of the œsophageal line, and more towards the superior than the inferior gastric border. The opening was a little larger than a five-cent piece, and was closed with a continuous Czerny-Lembert suture, after trimming the ragged edges with a pair of scissors. A drainage-tube was inserted and the wound was closed. The tube was removed in twenty hours. Food was administered on the third day. The patient made an uninterrupted recovery.

EPITHELIOMA OF THE PENIS.

MARTIN (*Journal of Cutaneous and Genito-Urinary Diseases*, March, 1895) states that an accurate knowledge of the percentage of recurrence after thorough extirpation can scarcely be obtained, since there is a natural tendency to report only those cases which are successful or which present certain peculiarities. Recurrence in loco or in the glands is expected as a rule, and when it occurs the case rarely finds its way into literature. Cancer of the penis is comparatively so rare that there is probably no individual experience sufficiently comprehensive to give the required data. In performing the operation, however, he believes we can arrive at a very clear idea as to the chance of radical cure in individual cases by careful microscopical examination of the parts removed. When the penis is amputated, cross-sections should be taken at the seat of amputation, and these should be carefully examined for cancerous infiltration. Where the suspicious growth is extirpated, similar examination should be made upon the entire periphery of the growth. Even though these sections show healthy tissue, this, of course, does not guard against glandular recurrence. In all cases where the cancer is typically developed the inguinal and lymphatic glands of both sides should be removed, and a microscopic examination of these specimens should throw valuable light as to the presence or absence of infection.

As to the operation, this, in the precancerous stage,—that is, when the disease cannot be clearly recognized as cancer,—may consist in thorough cauterization, or in excision followed by cauterization. In case the wound does not heal kindly, amputation of the penis should be performed at once. If cross-section shows involvement at the point of amputation, extirpation is indicated. In the latter case, when there are any remains of virility, castration is also advisable, but not when partial amputation is performed. The writer has seen one case of amputation at the peno-scrotal junction, in which an amount of erection was obtainable which, according to the patient's own statement, was not only a source of satisfaction from a cosmetic stand-point, but which also enabled him to continue his conjugal relations with satisfactory results. In all cases where the amputation of the penis is required the groin should be opened freely, and the entire chain of lymphatic glands should be removed, whether they are enlarged or not. This operation, if performed before there is extensive periadenitis, is perhaps a trifle tedious, but is perfectly safe, and is not difficult.

The two points to which this paper was designed to call special attention are:

That it is not justifiable positively to deny the possibility of contagion in epithelioma of the penis.

That when amputation of the penis is required the inguinal glands of both sides should be dissected out, even though they are not appreciably enlarged.

TREATMENT OF BUBOES BY INJECTIONS OF IODOFORM AND VASELINE.

RULLIER (*Archives de Médecine et de Pharmacie Militaires*, No. 3, 1895) warmly commends Fontan's treatment of buboes. This consists in, first, thorough antiseptic cleansing of the operative region, followed by puncture and complete evacuation of the pus. Ten-per-cent. iodoform vaseline mixture, liquefied by heat, is then injected and a bichloride dressing applied. The complete evacuation of the pus is one of the essential conditions for success in this operation. Before the iodoform injection the whole cavity is washed out with a solution of

1 to 1000 bichloride. If this occasions bleeding, pressure with wet bichloride cotton is exerted, and the flow of blood ceases. The iodoform vaseline mixture is liquefied by putting the vessel in which it is contained in a water-bath heated to 116° F. The pus-cavity should be filled, but not distended. The pain disappears from the first day, the periadenitis rapidly lessens, and cure is accomplished in six or seven days, leaving no cicatrix or other visible trace. In about twelve per cent. of cases the puncture closes at once, and the patient is able to resume his duties in one or two days. In most instances there is some discharge of vaseline with a few drops of pus for a few days. The wound should then be washed antiseptically and dusted with iodoform. If the cavity is not obliterated, a new injection of vaseline should be made in two days, followed by a third two days later, if this is required.

This treatment is inefficacious only when the skin is so thoroughly devitalized that sloughing takes place. Seven illustrative cases are reported.

VAGINAL HYSTERECTOMY AS DONE IN FRANCE.

GARCEAU (*American Journal of Obstetrics and Diseases of Women and Children*, March, 1895) publishes an able and instructive paper on this subject in which he gives the following guides:

The instruments should be: three knives with long handles, one straight, two curved on the flat with edges right and left respectively; five vaginal retractors of the Péan model; two pairs of scissors, straight and curved, with blunt points; two three-toothed traction forceps; two bullet-traction forceps; a plentiful supply of hæmostatic forceps having bites of different lengths,—a half-dozen of three inches, a few, curved on the flat, of three inches, and about a dozen ordinary small ones; uterine sound; needles, etc., in case the bladder is opened; two hooks for everting the uterus; self-retaining catheter; reflux catheter; sponge-holders; uterine curettes and dilators.

The Péan retractors require special mention. They are long, flat blades gently curved at the very end, mounted on strong aluminum handles. In the middle of the instrument, at the junction of the blade and the handle, is a sharp angle which increases the efficiency of the instrument, for it makes it easier for the assistant to manage. Each blade is four and a half inches long and one and a quarter inches wide; the handles are of about the same length. Four of the retractors are of the same size, and are used to separate the vaginal walls and expose the cervix. The fifth retractor is only seven-eighths of an inch wide, though of the same length; it is very useful to slip into a small opening in the peritoneum, and serves as a guide to a larger retractor.

The hooks may also be mentioned; they are eleven inches long, and have each two hooks at their extremities, three-eighths of an inch apart. They are very useful at times in everting the fundus.

The self-retaining catheter is very ingenious. It is an ordinary flexible soft-rubber catheter, having opposite its eyelets two rubber shoulders projecting one-quarter of an inch from the shaft, one on each side. These prevent it from slipping out of the bladder unless considerable traction is made; if this is done the rubber shoulders straighten out and the catheter is removed. To introduce the instrument a long whalebone sound is passed into the canal of the catheter as far as its tip. By drawing the mouth of the catheter towards the free end of the sound its shoulders straighten out and it can be easily passed.

For eight days before the operation the patient has vaginal douches of corrosive sublimate (1 to 2000). The day before she is well purged, and this is followed by a rectal enema at least six hours before the operation; if this is not done, and the enema given just before operation, there may be great annoyance caused by the discharge of fluid which has not wholly escaped. It is unnecessary to comment on the details of cleansing and shaving: soap, brush, and corrosive sublimate are freely used, both externally and in the vagina. The urine is now drawn, and the limits of the bladder determined by the finger in the vagina.

In these, as well as in cœliotomy cases, the French surgeons have their patients' lower limbs wrapped in cotton-wool and bandaged; this remains on three days; it lessens shock.

The patient being on her back, the operator now examines the pelvic organs in order to determine what his line of action shall be. In the majority of cases it is most convenient to operate with the patient in the dorso-sacral position; it is easier for the assistants, the patient remains stationary, her breathing is not interfered with, and fewer assistants are needed. When, however, on examination, the uterus is found to be firmly adherent, surrounded by masses, and high up, the left-lateral position of Péan will be preferred, for more room will be gained. But this cannot be said to be a hard-and-fast rule, for the majority of French operators, except Péan, never under any circumstances use the left-lateral position, believing that there is

no uterus which cannot be attacked to advantage in the dorso-sacral position. The left-lateral is practically Sims's position, except that the left limb is extended and the right one sharply flexed on the patient's chest.

Most surgeons, particularly the Americans, prefer to use ligatures instead of forceps for controlling hemorrhage. This method is certainly much more comfortable for the patient; but when it is necessary to do an operation quickly, it is, perhaps, better to employ forceps. The objections to forceps are their alleged insecurity, the possibility of wounding the viscera, and the difficulty of maintaining asepsis. A careful operator will avoid all these mishaps. The advantages are: they are easily applied, they are easily removed, they control hemorrhage perfectly, there is no subsequent fistula (from suture), and, lastly, they shorten the operation. In the descriptions which follow it will be assumed that forceps are used.

In all cases in which endometritis is present it is well to dilate and curette the uterus; some operators inject it with iodine after curetting.

The operation begins by placing the four large retractors in position, one on each side and one anteriorly and posteriorly. The assistant on the left of the patient—the more important position—manages the anterior and left-lateral retractors, while the right assistant manages the other two.

The cervix is now seized with traction forceps and the uterus lowered as much as possible.

Ségond's incision is infinitely the best, for by using it the ureter is not likely to be clamped. It is made with a knife, keeping somewhat close to the os externum anteriorly. Posteriorly, however, the knife is allowed to cut a little farther away (about a third of an inch more). Having done this, two additional incisions are made, one on each side, parallel to the lower border of the broad ligament; each is two-thirds of an inch long. The advantage is twofold: it gives more room and it protects the ureter. The distance of the circular incision from the os externum varies, of course, with the size of the cervix and the attachments of the bladder. Care should be taken not to cut too far out for fear of wounding the bladder, nor too near the os; in the latter case, the line of "cleavage" between the bladder and the uterus not being hit, the operation would be laborious and slow.

Directly the incision is made, the tip of the anterior retractor is forced into the wound and pulled upward and backward along the cervix. The sectional tissue yields a good deal,—surprisingly so, in fact,—and it is just this manœuvre that makes the Péan instrument of so great value. While the retractor is pulling back the tissue, the blunt-pointed curved scissors are used to separate the attachments between the bladder and the cervix; the concave curve of the scissors should point towards the uterus. Now short snips are taken from left to right, the greatest care being taken to keep as close to the uterus as possible in order to avoid the bladder. With each snip of the scissors the retractor takes a fresh hold, being introduced into the part just cut by the scissors. It is truly astonishing to witness for the first time the wonderful help given by the retractors; without them morcellation would be impossible. Unless the attachments between the bladder and the uterus extend high up, which is rare, the peritoneal cavity will soon be opened; it may be recognized by its bluish coloration and smooth surface. The large anterior retractor is now discarded and the narrow one thrust into the opening made; the finger completes the separation. Some operators prefer to use the finger instead of the scissors in separating the anterior attachments; this is not necessary, for if the retractor is properly used, there is no danger of wounding the bladder or ureters. However, when the peritoneal cavity is being neared, it is well to explore with the finger occasionally; if the tissues give at any one point, this point is probably nearest the peritoneal cavity.

Having opened anteriorly, the same process is performed posteriorly; here, however, the finger will prove of greater service than the scissors. Sometimes it will be best to work in front and behind simultaneously. The hemorrhage up to this stage is insignificant, and may be disregarded.

Traction downward should be made as much as possible by means of the forceps still on the cervix. Now the long-handled hook is dug into the anterior wall as high up as possible, and traction made; the uterus yields and begins to evert; the other hook is placed higher up, and traction again made. By repeating this process the uterus suddenly pops out, sometimes unexpectedly.

When the uterus is retroflexed, and also in cases in which the anterior attachments are unusually high, the posterior method is to be preferred. By using this method it is not necessary to complete the separation of the anterior attachments. The finger introduced into the posterior cul-de-sac explores the back of the uterus. Using the finger as a guide, a pair of bullet forceps is introduced and seizes the

uterus high up on its posterior surface. The organ is now pulled down and out in such a way as to evert the fundus through the vulva. By this movement the broad ligaments are twisted on themselves; their lower borders look up and in front, their upper borders down and behind. If the vesico-uterine attachments have not been separated entirely, this may be done now; the finger is passed up behind by the side of the uterus over the broad ligament, and serves as a guide to complete the separation.

A hæmostatic forceps is now placed on the left broad ligament from above downward (with relation to the patient), whether the posterior or the anterior method has been used. To do this the index finger seeks the top of the broad ligament and guides the forceps, preventing it from seizing the intestines; when the tip of the forceps strikes the palm of the hand it is locked. The ligament is now cut close to the uterus, so as to leave some tissue protruding from the forceps, for it might slip if this were not done. The same is done on the opposite side, and the uterus removed.

Sometimes there is a little oozing from the vaginal wound as well as from the prerectal tissue. It should be controlled by clamping the peritoneal and the vaginal edges together with small forceps.

Drainage is not required; the forceps assure complete drainage. The dressing consists of small tampons of gauze well saturated with iodoform powder; each tampon has a string attached to it so that it can easily be removed. Care should be taken to place the tampons above the tips of the forceps, if this is possible, in order to prevent the intestines from lying on these, thus producing pressure necrosis. Other tampons are placed between the forceps and the vaginal walls, while a strip of gauze is placed between them and the vulva. The patient is catheterized again, and the dressing completed by covering the handles of the forceps with aseptic cotton; a bandage is then applied. The patient is put to bed and her knees flexed and supported by a cushion. Pain is controlled by subcutaneous injections of morphine. In forty eight hours the forceps are removed and the vulva and vagina douched. It is only after the sixth day that the upper tampons are removed; this is in order to allow the peritoneal wound opportunity to contract down. Fresh tampons are at once replaced after douching. The dressing may now be done every day. In three weeks the patient is up and about.

Many surgeons employ a self-retaining catheter. If the instrument is aseptic there is no danger of cystitis; it is not, however, absolutely necessary to use one.

If a fistula is made it is sewed at once; the natural contraction of the tissues will do much to close these fistulæ.

During the eversion of the uterus a bullet-traction forceps should pull down and prevent it from being carried up into the peritoneal cavity; the uterus is flexed on itself in doing this.

If the uterus cannot be everted, but can be lowered, the following manœuvres should be performed: the cul-de-sacs being opened, the index finger of the left hand is introduced into the anterior opening in front of the uterus and seeks the top of the left broad ligament; then taking a long hæmostatic forceps, one jaw is introduced into the posterior opening and the other into the anterior. Before locking, the index finger explores behind and pushes aside intestines if they prolapse; this has already been done anteriorly. The ligament is clamped and cut and the uterus delivered. It is now a simple matter to clamp the right broad ligament.

If the uterus will not descend, progressive clamping must be done. The lower part of the ligament is seized with a forceps having a bite of one and a quarter inches on each side; the ligament is cut up to the tip of the forceps, and the uterus, thus liberated, is lowered; progressive clamping is done until the organ is out. If the uterus will not descend, and the operator is obliged to introduce his forceps directly into the pelvic cavity, the forceps must never be locked until the finger has explored anteriorly and posteriorly. Richelot passes his index and middle fingers into the anterior and posterior cul-de-sacs respectively and guides his clamps in the most perfect manner. Care should be taken that the forceps do not nip the vagina, rectum, or bladder; sloughing would ensue.

Pozzi does hysterectomy for the following conditions:

Diffuse suppuration of a chronic nature involving all the tissues around the appendages and giving rise to such disorders that ablation of a limited pocket would seem to be of little value or impracticable.

Non-suppurative, very adherent, chronic conditions forming a mass in the pelvis. In these instances the chronicity of the affection, as well as the exacerbations of pelvic peritonitis, should be considered. The surgeon should not diagnosticate invincible adhesions without due reflection. It is perfectly possible that an erroneous idea of the condition may be obtained from

examining the patient during an acute attack; here the œdema of the deeper tissues deceives the examiner.

Continually discharging fistulæ of the abdominal wall or vagina succeeding cœliotomy (with or without drainage), and not yielding to curetting, to dilatation, nor to operation, with a view of finding the suture which causes the fistula. This must not be construed into an argument against cœliotomy, for the writer has had to open the abdomen to extirpate appendages in a suppurative state, complicated with fistula, after vaginal hysterectomy.

Persistence of adnexial tumors which are painful, existing after cœliotomy. He has had to do the same thing after vaginal hysterectomy. Pichevin practically admits the same, but admits as an additional reason,—

Fistulæ opening into the rectum or bladder and communicating with a pus-cavity.

To complete the list we might add: incurable disease of the uterus persisting after removal of the appendages by cœliotomy.

We might even add to these conservative indications that of Landau, which is,—

Extensive disease of the uterus, such as parenchymatous metritis, etc., complicated with double purulent salpingitis. He insists on removing the appendages, however, even if he is obliged to do a cœliotomy at the same sitting to accomplish this result.

These, then, are the indications which are recognized by the conservative surgeons. Perhaps it would be better to say by surgeons who prefer to do cœliotomy when this method seems to offer any chance for success.

SURGICAL TREATMENT OF VAGINISMUS.

FROELICH (*Revue Médico-Chirurgicale des Maladies des Femmes*, January 25, 1895) practised dilatation twice in the case of rebellious vaginismus, but without favorable results. He then performed the following operation. Two incisions, each two inches in length, were made upon the posterior wall of the vagina to the right and left of the middle line, a large Sims's speculum was then introduced, and as a result of the extreme dilatation produced by the instrument the antero-posterior linear wounds were transformed into two lozenge-shaped wounds with their transverse diameter the longer. The lower edges of these wounds were then freed by dissection and were sutured to the upper edge, thus making a line of suture running at right angles to the original cut and very considerably enlarging the vaginal introitus. The patient was permanently cured, and was found to be well two or three years later.

ABDOMINAL EXTIRPATION OF UTERINE FIBROMATA WITHOUT REMOVAL OF THE UTERUS.

OBALINSKI (*Revue de Thérapeutique*, 62 année, No. 5) holds that total hysterectomy as a routine treatment for myomatous uterus is in the great majority of cases uncalled for, since nearly always the fibroma possesses a capsule which can readily be stripped by the fingers or the handle of a scalpel. It is true that this procedure gave a mortality of eighteen per cent. in Martin's hand, while supravaginal amputation gave a mortality of four per cent.; but this depended rather upon Martin's method of closing his uterine wound, since he employed a buried suture through which fluid from the interior of the uterus is able to pass and infect the peritoneum.

Obalinski, if the tumor is pediculated, ligates the base and ties the vessels, closing the wound by sutures. If the myoma is interstitial, he reaches its capsule by an incision and frees it by blunt dissection, ligating the vessels as they bleed. The deeper parts of the wound were closed by buried suture. Interrupted suture closes the margins of the opening. The margins of the uterine and abdominal wounds are then held in apposition by another suture, and drainage is accomplished by iodoform gauze passed down to the uterine incision.

VULVAR PRURITUS.

℞ Sulphophenate of soda, 5 to 10 parts;
Vaseline and lanoline, each, 45 parts.

Revue de Thérapeutique, 62 année, No. 5.

BLENNORRHAGIC VAGINITIS.

℞ Pure creosote,
Solution of potassium hydrate, of each, 3 parts;
Camphorated water, 240 parts.

2 dessertspoonfuls are injected two or three times a day into the vagina.

Revue de Thérapeutique, 62 année, No. 5.

TREATMENT FOR PUERPERAL ENDOMETRITIS.

HUINIK recommends in the treatment of puerperal endometritis, as soon as fever appears in the course of the puerperium, a thorough examination of the genital organs. Ulcers or wounds are thoroughly disinfected with a strong solution of sublimate and are then touched with tincture of iodine. If the tem-

perature continues high, iodine application is made to the entire uterine cavity after previous disinfection with carbolic acid or sublimate. In fifty-two cases thus treated, cure was accomplished at once.—*Revue de Thérapeutique*, 62 année, No. 5.

MASSAGE OF THE UTERUS.

In a recent discussion before the Surgical Society of Paris a number of distinguished gynæcologists, among them Pozzi and Richelot and Championnière, called attention to the dangers of indiscriminate massage in gynæcological treatment. Indeed, their feeling was absolutely hostile to this method of treatment, Monod alone holding that if properly applied it might give satisfactory results.

The *Revue Médico-Chirurgicale des Maladies des Femmes* for January 25, 1895, holds that massage is indicated only in chronic, long-standing cases, and should not be employed till after preliminary thorough disinfection. Moreover, it should often be the complement of curettage, or a series of therapeutic measures designed to combat metritis or endometritis. This treatment is contraindicated in all acute or subacute inflammatory conditions of the uterus or adnexa. Even in the old apyretic cases, when the tubes and ovaries are enlarged, this treatment should be employed with the greatest prudence, beginning very gently and taking temperature after each séance. Amenorrhœa is a contraindication, since this symptom is so frequently associated with pregnancy. Uterine hemorrhages should first be treated by intrauterine curettage or cauterization, massage being employed later if there is a deviation to correct which would render a return of the endometritis probable. Purulent discharge is a temporary contraindication, as it is necessary first to disinfect the vulva, vagina, and uterus. Pain is generally an indication, according to its cause. In uterine prolapse, especially when associated with plastic operations of the vagina, this treatment gives admirable results. In lateral positions and in antero-deviations consecutive to pathological retraction of the broad ligaments, this treatment, if it does not bring about an absolutely normal position, lessens pain and dysmenorrhœa and stops atrophic lesions. Retro-deviations, without important lesions of the adnexa, are also properly subjected to massage. Even when there are some adhesions, with prolapse and moderate inflammation of the tubes and ovaries, massage is indicated. In the pathological anteversions massage is the only agent which is efficient in combating the pains.

Epiploic or other adhesions following laparotomies also yield to this treatment. Old cicatrices and old pelvic adhesions, the remains of perimetritis, are especially amenable to gynæcological massage.

This method of treatment should only be employed by a physician of experience and after a very careful examination.

Rutuaud holds that it is a most valuable therapeutic means when the surgeon has the skill to apply it gently, readily, and prudently. If blindly applied, it does more harm than good.

Reviews.

LABORATORY GUIDE FOR THE BACTERIOLOGIST. By Langdon Frothingham, M.D.V., Assistant in Bacteriology and Veterinary Science, Sheffield Scientific School, Yale University. Illustrated.
Philadelphia: W. B. Saunders, 1895.

This little work merely covers the technique of staining, but is a useful book for the laboratory worker, as it gives in condensed form most of the best methods of staining. The book is printed in good clear type and bound in flexible cloth.

TRAITÉ ÉLÉMENTAIRE DE CLINIQUE THÉRAPEUTIQUE. Par Dr. Gaston Lyon, Chef de Clinique Médicale à la Faculté de Médecine de Paris.
Paris: G. Masson, 1895.

To subscribers to the THERAPEUTIC GAZETTE who are sufficiently familiar with the French language to be able to read the text of this book we can most cordially recommend it. The author's method of dealing with therapeutics is from the point of the disease and not of the drug, and he contributes a volume which is closely printed to the extent of nine hundred and sixty-four pages.

The first chapters are upon the disorders of digestion, then follow those upon disorders of the respiratory, circulatory, urinary, and nervous systems, while the book closes with chapters upon the infectious diseases, the diseases of nutrition, and upon the various forms of poisoning, such as alcoholism, plumbism, and morphine-mania.

As may be imagined from the size of the volume, each disease receives ample treatment. On an average almost every page contains some prescription which is regarded favorably by the author, and we are agreeably disappointed to find that much of his therapeutics closely resembles that followed by those per-

sons in this country who are supposed to be authorities in this branch of medicine.

In the article on pneumonia, Dr. Lyon carefully divides the disease into the various forms which it is so necessary for us to understand if our treatment is to be successful. Thus, he discusses the treatment of the grave and mild forms of the disease, even going so far as to quote the results of the treatment by serotherapy. In the treatment of the latter stages of the graver forms, where there is feebleness of the pulse or other evidences of circulatory failure, he advises the employment of nux vomica and digitalis or of caffeine and ergot. He also suggests, for the purpose of combating any tendency to collapse, injections of camphorated oil and strychnine, and as a tonic the employment of coca and kola.

In the earlier stages he believes in relieving the pain by the use of morphine, enveloping the chest in cold compresses, and in the employment of stimulants and supportants, such as ammonia and quinine. Equally careful recommendations are made in the discussion of almost every other disease, and if space justified it, we could readily fill many pages of the GAZETTE with extracts from his valuable clinical article.

DOSE-BOOK AND MANUAL OF PRESCRIPTION-WRITING, WITH A LIST OF THE OFFICIAL DRUGS AND PREPARATIONS AND ALSO MANY OF THE NEWER REMEDIES WITH THEIR DOSES. By E. Q. Thornton, M.D., Ph.G.
Philadelphia: W. B. Saunders, 1895.

Dr. Thornton tells us in his preface that this manual was prepared for the purpose of aiding the student and the young graduate in the administration of medicines, and his idea in writing it arose from his experience in teaching large numbers of students materia medica, pharmacy, and therapeutics in the Jefferson Medical College.

The first part of the work is devoted to the consideration of weights and measures, with comparative tables of the various systems and a diagram showing the comparative size of the various weights and measures. This is followed by some forty-odd pages devoted to prescription-writing, in which the grammatical construction of prescriptions, and therapeutic, chemical, and pharmaceutical incompatibilities and solubilities are fully covered.

Part III. discusses official preparations and the methods of prescribing them, and Part IV. contains dosage and methods of administration.

The book closes with a list of official drugs and preparations, in which the botanical source and the dose of the preparations of each drug are given.

Finally, in the appendix, there are some one hundred questions or more which are answered on the succeeding pages under similar numbers. The index is full and complete, and the text is printed in large letters, so as to be readily seen by the reader. Even the tables are placed in large type.

Nearly every physician who graduates finds practical difficulty in deciding as to the form in which he will prescribe his remedies, and we believe that Dr. Thornton has succeeded admirably in giving the young medical man the information which he needs.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX. A Work of Reference for Medical Practitioners.
Stone Bridge, Bristol, England: John Wright & Co., 1894.

The twelfth year of this admirable compilation brings us a volume more complete and satisfactory than any of its predecessors, and this is high praise. Hare's section on the Therapeutic Gains of the Past Year constitutes the first chapter. In looking through the book, the shortcomings inseparable from such compilations are found to be surprisingly few.

Appendicitis is treated at length by Barling and Bull both articles being admirably illustrated.

Hurry Fenwick contributes a section upon Bladder Tumors and Renal Surgery, in which even the specialist can find nothing wanting.

Mayo Robson on Abdominal Surgery, James Shaw on the Facial Expressions of Insanity, Simon Snell on Eye-Diseases, Sonnenburg on Lesions of the Spine, Thorburn on Surgery of the Brain and Nervous System, and Unna on Eczema of the Hands and Fingers, have all contributed articles of the highest practical value.

The book very thoroughly represents the recent advances in practical and surgical therapeutics. It is to be warmly commended, since it serves as a concise, reliable, and for its size a remarkably complete guide to the practitioner who is anxious to know the latest wrinkles in treatment.

A MANUAL OF DISEASES OF THE EAR, FOR THE USE OF STUDENTS AND PRACTITIONERS OF MEDICINE. By Albert H. Buck, M.D. Second edition, revised.
New York: William Wood & Co., 1895.

Dr. Buck's work on "Diagnosis and Treatment of Ear-Diseases" is so well known by specialists

and that large number of general practitioners who endeavor to keep themselves familiarized with, at least, the essentials of maladies of special organs that its reappearance under the title of "A Manual of Diseases of the Ear," etc., with revisions and additions, is hailed with a great deal of satisfaction.

Chapter III., entitled Analysis of Symptoms, is a particularly serviceable one to the general physician. Thus, in discussing diminished hearing, the author states that a moderate diminution of the hearing power of recent origin and unassociated with pain is almost always due to one of two causes,—an accumulation of cerumen in the external auditory canal, or a catarrhal swelling of the mucous membrane of the middle ear. If the deafness developed somewhat suddenly, and without subjective noises, the probability is that the case is one of impacted cerumen; but if it is developed more slowly, and especially if there had been a certain amount of tinnitus at the same time, the probabilities would favor the diagnosis of a catarrhal cause.

Sudden or rapid loss of hearing after mumps or spinal meningitis nearly always indicates a lesion of the auditory nerve. If the loss of hearing is associated with a feeling of dizziness, marked subjective noises, and a staggering gait, an auditory nerve lesion (probably labyrinthine) is almost certainly present. These symptoms developing in a person who has not a short time previously passed through either of the diseases mentioned above, indicates the probable occurrence of an apoplectic effusion in the cochlea, or the development of a gumma or other syphilitic lesion in the porous acusticus internus, in the labyrinth, or at the oval window.

The circumstances preceding or accompanying the deafness, the variable character of the hearing, diminished range of hearing, and deafness for certain tones,—all these points are discussed with an idea of their practical bearing. Then, under separate captions, are taken up the sensation of something moving in the ear when the head is moved, sensation of pressure or fulness in the ear, unnatural resonance of one's own voice in the affected ear, pulsation or throbbing in the ear, itching, soreness, pain, pain produced in the ear by movements of the jaw, discharge from the ear, vertigo, and sensation of numbness in and around the ear.

In regular order, beginning with diseases of the auricle, the various affections of the ear are systematically taken up.

The writer has a happy knack of clear, forcible expression, and has been able to make perfectly clear a subject which to nearly all students and the vast majority of practitioners is complex and uninteresting. He illustrates teaching by cases. These are also properly selected to elucidate the text, and are not forcibly dragged in as an advertisement for the author. It is worthy of note in these days of borrowed illustrations with acknowledgment concealed in a preface, that the credit for all the copied pictures is given where it can be plainly seen.

The chapter devoted to Disease of the Mastoid Process, which the author states has been entirely rewritten, is certainly one of the best to be found in the English language.

THE ASEPTIC TREATMENT OF WOUNDS. By Dr. C. Schimmelbusch. With a preface by Professor Bergmann. Translated from the second German edition by Alfred Theodore Rake, M.B., B.S. (London), F.R.C.S. (Eng.).
London: H. K. Lewis, 1894.

This book, which receives the endorsement of Von Bergmann as a complete exposition of his views and technique concerning aseptic surgery, would, perhaps, carry more weight had Von Bergmann been able to prove by exhibition of his clinical material that his results were superior to those of his professional brethren who practise antiseptic surgery. As it is, however, the method will be read with interest, but the work will probably not bring about a revolution in the individual technique of American surgeons.

In considering disinfection of the body the author gives a vague and certainly far from complete technique for cleansing the hands and the surface of the body, holding that when the surgeon has carried out in a most thorough manner these essentially mechanical cleansing measures he can reckon on their results with certainty.

Sterilization of instruments is accomplished by placing them in carbonate of sodium solution, it being stated that even knives can be boiled without losing their edge if the precaution is taken to prevent their moving about in the boiling alkali. This statement is, unfortunately, not true. The author also states that silk, even if frequently reheated for three-quarters of an hour in steam, is not spoiled. With this view also most surgeons are not in accord. A very excellent box for steam sterilization of ligatures is figured.

Von Bergmann prepares catgut as follows: the glass receptacle is sterilized for three-quarters of an hour in steam; the threads of catgut are wound up on glass reels or plates as the case may be. If the gut contains fat, it is re-

moved by allowing it to lie in ether for twenty-four hours. After the ether has been poured off, the gut is allowed to lie in an alcoholic solution of sublimate of the following composition:

Sublimate, 10;
Absolute alcohol, 800;
Distilled water, 200.

This solution is renewed after forty-eight hours. This part of the process must last not less than forty-eight hours. The gut is removed from the sublimate solution and placed in alcohol, which should be absolute if a stiff gut is required, or diluted with not more than twenty per cent. of glycerin for a softer form of gut. Sublimate may be added if desired.

Sponges are sterilized by being dipped in a large vat of boiling soda solution. Hypodermic syringes which can be boiled are figured.

The book closes with a chapter upon "The Improvisation of Aseptic Dressings for Emergencies and the Treatment of Injuries." There is an extensive bibliography appended and an excellent index. It may be said of this book that it tells us little that is new, is not particularly happy in expression, and the ground that it covers has been much more ably traversed by a number of English and American writers.

The work of the translator, Dr. Rake, deserves high praise.

THE URINE IN HEALTH AND DISEASE, AND URINARY ANALYSIS PHYSIOLOGICALLY AND PATHOLOGICALLY CONSIDERED. By D. Campbell Black, M.D., L.R.C.S. (Edin).
Philadelphia: Lea Brothers & Co., 1895.

The difficulty with many text-books is that they fail to link together theory and fact, scientific research and clinical observation, so that the reader is unable, on the one hand, to grasp the results of scientific work, or fails to recognize the relations of such work to his bedside experiences. One of the first points of interest which attracts our attention in Dr. Black's book, upon a subject which has already been thoroughly discussed by a number of writers, is that he invariably links his theory and practice so closely as to afford valuable information and interest his reader. Thus, under the head of Globulinuria, we are not only told how to obtain globulin from the urine by the most approved processes, but we are also told its pathological and clinical significance. In the description of casts we are also given similar information, and in the portion of the book where the reliability of the various tests of the urine is discussed, those substances which may mislead us in our examination are carefully pointed out and the reason for their existence explained. The cuts are also clear and distinct, and, while not present in great number, are so well distributed and chosen as to greatly aid in the elucidation of the text. We are glad to find that the book has been published in America.

ANTISEPSIS AND ANTISEPTICS. By Charles Milton Buchanan, M.D. With an introduction by Professor Augustus C. Bernays.
Newark, N. J.: The Terhune Co., 1895.

Dr. Buchanan has contributed an extremely useful book to the large mass of medical literature bearing on this topic. There are a number of interesting illustrations: one of Ambroise Paré, one of antiseptic surgery on the battlefield, and one of a hospital in a French theatre, and, finally, the antiseptic arrangements before amputation of breasts. The history and the theory of antiseptics are given at length. Then follows an alphabetical arrangement of antiseptic substances, each briefly described and considered in regard to its germicidal value.

The author states, in considering corrosive sublimate, that we may consider it conclusively proved that this substance is possessed of low germicidal power, although high in inhibitory activity. The book closes with the antiseptic methods of some of the more distinguished surgeons of the world, including Anandale, Bryant, Victor Horsley, Senn, Gussenbauer, Von Esmarch, Reginald Harrison, J. William White, and Roswell Park.

Correspondence.

LONDON.

(From our Special Correspondent.)

Continued favorable reports of the use of antitoxin in diphtheria are given in the various weekly journals of the city, also some very favorable results of the use of the serum as a preventive. On January 30 two children in a family of six were attacked by diphtheria of a severe type; the remaining children were at once each given an injection of 10 cubic centimetres of antitoxin, with the production of a roseolar eruption. At time of writing they are still free from the disease.

This week an interesting case of tetanus treated by injections of tetanus antitoxin was shown by Dr. Hurry Fenwick at the London Hospital. On December 16, 1894, thirteen days

after the onset of the disease, the patient was placed under treatment. In the five following days seven injections of serum were administered, the first three doses being of .60 gramme and the last four doses being 2.25 grammes in 23 cubic centimetres of water. The injections produced great increase in severity of symptoms at the time of their administration, so that chloroform had to be given for the first three doses and a preliminary injection of morphine for the remainder; an eighth injection was thought advisable, but the patient would not consent. By December 30 the patient was progressing favorably, and on February 25, 1895, he is quite well, the only sequelæ being hardness of the abdominal muscles, which is gradually lessening. The cost of serum for this case, as given at the hospital, was eight pounds (forty dollars).

Mr. Barlow (King's Hospital), when opening a tuberculous abscess, or in removing suppurating tuberculous glands when the wound may become infected by contact with the pus, treats the part by washing out thoroughly with acid carbolic solution; then swabbing with strong acetic acid, leaving it a few minutes; then rubs the wound full of iodoform washed in carbolic solution (1 to 20). Healing is slightly delayed, but by this means he has been able to avoid secondary infection and secures better results in these cases.

At the Cancer Hospital, Brompton, Dr. Snow considers that in operations for cancer of tongue or lips, safety only lies in the removal of all lymphatic glands in the neighborhood before they are infected, and so get rid of the lymph-channels that are filled with cancer cells. Syphilis he gives as the cause of cancer of the tongue in the majority of cases. Within six weeks after commencement of growth the lymph-glands in the neighborhood are infected, and Dr. Snow counsels early interference. He uses as a wash for the mouth boro-glyceride (seventy per cent.) as being the best; occasionally he uses chloralum (1 to 40). For pain he employs morphine, but finds that smaller quantities of it can be used if in combination with antipyrin. As a way of administering opium, when the patient is intelligent, he teaches them the use of the opium-pipe, it being very convenient and pleasant.

Dr. Purcell, in incurable cases of cancer of uterus, uses plugs of ichthyol gauze between the injections. He treats lupus by curetting and the galvanic cautery.

Dr. Jessup, in malignant disease of uterus where operative treatment is inadvisable, often proceeds by inserting sticks of zinc chloride in the uterus, then tamponing vagina with cotton-wool soaked in a solution of bicarbonate of sodium. In ten days the plugs are removed, the slough often comes away, and the patient improves. In one case the anterior wall of the rectum sloughed as well; colostomy was performed, with recovery of patient.

The pathologist at Moorfields states that in almost every case of severe injury of the eye, where a foreign body lodges in the vitreous and is subsequently removed by the magnet, the eye is lost. He condemns the magnet as of no service in these cases.

That a much greater dread of the dangers of cocaine is entertained here than in America is evident to any practitioner visiting the clinics of the Nose and Throat Hospital. Dr. P. McBride, of Edinburgh, finds that by using friction in making the applications a much smaller quantity can be used. In applying the drug to the nasal mucous membrane, he wraps the end of a probe in cotton-wool, dipping it into a ten-per-cent. solution, and, squeezing out the surplus, rubs it vigorously over the part to be operated upon. He applies it in the same way to the back of the throat and to the tonsils.

Dr. Lang, in granular conjunctivitis, before expressing the granules, rubs finely powdered cocaine well into the lids with the rounded end of a glass rod.

At Moorfields they find cocaine of little use in acute inflammatory disease where it is necessary to operate.

At the Cancer Hospital cocaine is a favorite application for relief of pain when cancer occurs in the floor of the mouth.

Dr. Dundas Grant, in eczema of the external meatus, finds iodol to be the most satisfactory application. In the moist form, after drying with cotton-wool, he applies the powder; in dry eczema he uses iodol made into an ointment with lanoline and vaseline, the quantity of the latter varying according to the season of the year.

Dr. P. McBride prefers in this disease to paint the surface with a five-per-cent. solution of silver nitrate, afterwards using a favorite prescription of Dr. Allan Jamieson's, as follows:

℞ Resorcini, gr. x;
Ichthyolici, ♏xii;
Acid. salicyl., gr. x;
Zinc. oxidi,
Pulv. amyli,
Lanoline,
Vaseline, of each, ʒii. M.

Dr. D. Grant, in pharyngitis of children, uses as an application—very grateful to the

little patients—glycerin of alum in syrup of mulberries.

WHOOPING-COUGH.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—The specific treatment of whooping-cough has always run in two lines,—viz., towards antispasmodics, like bromides and belladonna, and towards germicides, like carbolic acid and resorcin. It is certain that in anti-spasmodics and sedatives the best results have so far been obtained, belladonna and bromides still holding their place in the therapeutics of this cough. Whooping-cough is a disease with which all physicians are familiar; a lengthy discussion is, therefore, unnecessary. There are, however, a few facts of interest which are not generally dwelt upon by physicians which can be properly herein touched upon.

The disease in question is infectious and highly so, and is easily transmitted from a child suffering from it to others who have not experienced it. Whooping-cough is attended with and owes its existence to a catarrhal inflammation of the lining membrane of the air-passages. This inflammation comes on and runs its course and gradually subsides much in the way that an ordinary acute catarrh does, the peculiar spasmodic cough occurring during the height of its course, lasting for a time, then disappearing. The contagious principle or peculiar element which excites the disease is given off in the breath and in the exhalations from the body of a patient suffering from it. After a person becomes exposed and receives into his system this element, a certain period of development must pass before the disease is brought into existence. Smith has fixed this at four days. The disease under consideration may attack persons of any age, but it is most common between the ages of one and eight or nine years. Occasionally infants under one year suffer from it, but such cases are comparatively rare. It is believed at the present time that a specific poison or contagious principle is alone capable of giving rise to whooping-cough, that without this principle the disease cannot be brought into existence; in other words, the child must take whooping-cough from an infected child or adult, or the contagious principle must be conveyed to it by a third person. Whether it can be transmitted through a third person, and that person be in good health, is not known, but some authorities are inclined to believe in the affirmative. Accepting the germ theory, or that a contagious principle is present in all cases, then the only way to escape the disease is to avoid exposure and never come in contact with a person suffering with it. Whooping-cough can only be experienced once by the same person.

When a child is first attacked with the acute catarrh which ushers in the whooping-cough, it is absolutely impossible to determine from the symptoms presented that whooping-cough exists. They differ little or not at all from those of an ordinary acute catarrhal attack until the characteristic cough is heard. Not infrequently parents call in the physician during the catarrhal or first stage, and he considers and treats the attack as a common cold. Later on, when the peculiar spasmodic cough has appeared, they discover that the child has whooping-cough, and blame him for lack of discernment, that is, of course, wholly undeserved. If the disease was prevalent, or if it was known that the child had been exposed to the contagion, the doctor would naturally suppose whooping-cough was coming on, but to determine this in the absence of the characteristic cough would be absolutely impossible for any one. I formulated the following combination of remedies which will meet the therapeutic indications of both stages, and found it a remedy of great utility. If the disease in question does not subside completely in two or three weeks, some associated complication or disease of the lungs may be suspected. Relapses are not infrequent, but they are of short duration.

But very little can be said upon the subject of treatment of pertussis. There is scarcely a disease in which a greater variety of remedies have been tried, and it is safe to say that but few, from Meigs's and Pepper's alum and belladonna mixture to the *Helianthus anivous semen* (Oscar Wilde sunflower remedy), not excluding bromoform, have proved in any degree effectual in both stages of this affliction of childhood. The following combination of remedies formulated by the writer and tested in fourteen years of active practice depends, in part at least, upon the use of scullcap for its well-known antispasmodic and sedative properties.

℞ Ext. scutellariæ fl., ʒii to ʒiv;
Mel. despumatum, ʒi;
Cinchonæ rubræ, ʒiss;
Ammonii mur., ʒiss;
Spir. ammonii aromat., ʒiss;
Spir. frumenti opt., ʒiv;
Aquæ, q. s. ad ʒiv.

Sig.—Give from 30 drops to 1 or 2 teaspoonfuls three times a day.

Yours truly,

R. L. PATTERSON, M.D.

HUMBOLDT, ALLEN COUNTY, KAN.

The Busy Physician
Hasn't time
For large, "wordy"
Treatises upon prevalent
Diseases.

The LEISURE LIBRARY
Provides the physician
With short
Practical treatises,—stripped
Of all details
Not required by
The general practitioner.

SEE ADVERTISING PAGES 4 AND 5.

☞ Please mention the THERAPEUTIC GAZETTE.

HYDROZONE.

IS THE STRONGEST ANTISEPTIC KNOWN.

One cubic centimetre of Hydrozone is, for its Bactericide Power, equivalent to three cubic centimetres of a solution containing 3% of Bichloride of Mercury.

CURES DISEASES CAUSED BY GERMS:

DIPHTHERIA, SORE THROAT, CATARRH, HAY FEVER, LA GRIPPE,—OPEN SORES: ABSCESSES, CARBUNCLES, ULCERS,—INFECTIOUS DISEASES OF THE GENITO-URINARY ORGANS,—INFLAMMATORY AND CONTAGIOUS DISEASES OF THE ALIMENTARY TRACT: TYPHOID FEVER, TYPHUS, CHOLERA, YELLOW FEVER,—WOMEN'S WEAKNESSES: WHITES, LEUCORRHŒA,—SKIN DISEASES: ECZEMA, ACNE, ETC.

SEND FOR FREE BOOK GIVING FULL INFORMATION.

PHYSICIANS REMITTING 25 CENTS POSTAL ORDER WILL RECEIVE FREE SAMPLE BY MAIL.

AVOID IMITATIONS.

Hydrozone is put up only in small, medium and large size bottles, bearing a red label, white letters, gold and blue border.

GLYCOZONE
CURES
DISEASES OF THE STOMACH.

☞ Mention this publication.

SOLD BY
LEADING DRUGGISTS.

PREPARED ONLY BY

Charles Marchand

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France).

Laboratory, 28 Prince Street, New York.

☞ Please mention the THERAPEUTIC GAZETTE.

OPHTHALMIC TABLETS.

In the introduction of Soluble Ophthalmic Tablets it is our purpose to embrace those drugs most commonly employed locally in treating diseases of the eye, or in preparing this organ for surgical therapeusis. We are confident that their importance, value, and usefulness will be at once recognized, not only by the eye specialist, but also by the general practitioner.

These tablets dissolve readily in water, and hence can be employed for the extemporaneous preparation of solutions.

Diluent when required, chemically pure boric acid.

MEDICINE DROPPER, GRADUATED.
Price to Physicians, 30 cents each, net.

Issued in bottles of 100.
The more expensive in tubes of 25.

Atropine sulphate	1 gr.
Boric acid	5 grs.
Cocaine hydrochlorate	2¼ grs. and 1⅛ grs.
Copper sulphate	1 gr.
Eserine, see Physostigmine.	
Physostigmine salicylate	⅛ gr.
Sodium borate	5 grs.
Tannic acid	5 grs.
Zinc sulphate	1 gr.

To make these tablets more available we have introduced the Medicine Dropper here illustrated, consisting of a graduated bottle with a capacity of 4 drachms of liquid. The tablet may be dissolved in the necessary amount of water, and the bottle closed by the pipette of improved form, the ground sides of which fit into the neck of the bottle as a stopper, the whole forming an air-tight container. The pipette is closed at the top by means of a rubber diaphragm, which, when pressed down and then released, will cause some of the solution to ascend the tube. By again gently pressing the diaphragm, one or more drops can be easily forced out.

PARKE, DAVIS & CO.,

DETROIT, NEW YORK, AND KANSAS CITY, U.S.A.,
LONDON, ENG., AND WALKERVILLE, ONT.

A Vitalizing Tonic to the Reproductive System.

SANMETTO

FOR

GENITO-URINARY DISEASES.

☞ **A Scientific Blending of True Santal and Saw Palmetto in a Pleasant Aromatic Vehicle.**

SPECIALLY VALUABLE IN

Prostatic Troubles of Old Men—Pre-Senility,
Difficult Micturition—Urethral Inflammation,
Ovarian Pains—Irritable Bladder.

POSITIVE MERIT AS A REBUILDER.

DOSE:—One teaspoonful four times a day.

OD CHEM. CO., NEW YORK.

☞ Please mention the THERAPEUTIC GAZETTE.

THE STANDARD HYPNOTIC,
BROMIDIA.

Dose—One-half to one fld. drachm in water or syrup.

THE STANDARD ANODYNE,
PAPINE.

Dose—One fld. drachm, represents ⅛ gr. morphia in anodyne principle, minus its constipating effect.

THE STANDARD ALTERATIVE
IODIA.

Dose—One or two fld. drachms as indicated.

Clinical reports from eminent physicians throughout the World furnished on application.

BATTLE & CO.

CHEMISTS' CORPORATION,

ST. LOUIS, MO., U. S. A.

☞ Please mention the THERAPEUTIC GAZETTE.

RHEUMATISM AND GOUT.

BY

F. LEROY SATTERLEE, M.D.

THIS little treatise, one of "THE PHYSICIAN'S LEISURE LIBRARY" series, is a remarkably well-digested and compact statement of what is actually known to-day respecting these kindred diseases, their causes, and their alleviation or cure, and as such possesses much of interest and value to many thousands of sufferers. The author, a physician of eminent attainment and high professional standing, possesses exceptional qualifications for treating of these diseases, not only as having made them a lifelong study, but as having also been himself a victim of obstinately developed tendencies in that direction, in his youth, and having succeeded by strict attention to diet and exercise, and judicious use of remedial agents, in completely emancipating himself from subsequent attack. Many an unhappy sufferer may find valuable information and helpful hints in these pages.—*Public Opinion.*

* * * * * *

In Embossed Paper Covers, 25 Cents, Post-paid.

Substantially Bound in Cloth, 50 Cents, Post-paid.

* * * * * *

GEO. S. DAVIS, Medical Publisher,

Box 470 · · DETROIT, MICHIGAN.

THE BEST ANTISEPTIC FOR BOTH INTERNAL AND EXTERNAL USE

Antiseptic
Prophylactic
Deodorant

LISTERINE

Non-Toxic
Non-Irritant
Non-Escharotic

LISTERINE is a well-proven antiseptic agent—an antizymotic—especially useful in the management of catarrhal conditions of the mucous membrane; adapted to internal use, and to make and maintain surgical cleanliness—asepsis—in the treatment of all parts of the human body, whether by spray, irrigation, atomization, or simple local application, and therefore characterized by its particular adaptability to the field of

PREVENTIVE MEDICINE—INDIVIDUAL PROPHYLAXIS.

LISTERINE destroys promptly all odors emanating from diseased gums and teeth, and will be found of great value when taken internally, in teaspoonful doses, to control the fermentative eructations of dyspepsia, and to disinfect the mouth, throat, and stomach. It is a perfect tooth and mouth wash, INDISPENSABLE FOR THE DENTAL TOILET.

Lambert's Lithiated Hydrangea.

FORMULA.—Each fluid drachm of "Lithiated Hydrangea" represents thirty grains of FRESH HYDRANGEA and three grains of CHEMICALLY PURE Benzo-Salicylate of Lithia. Prepared by our improved process of osmosis, it is INVARIABLY OF DEFINITE AND UNIFORM therapeutic strength, and hence can be depended upon in clinical practice.
DOSE.—One or two teaspoonfuls four times a day (preferably between meals).

Close clinical observation has caused LAMBERT'S LITHIATED HYDRANGEA to be regarded by physicians generally as a very valuable Renal Alterative and Anti-Lithic Agent in the treatment of

URINARY CALCULUS, GOUT, RHEUMATISM, CYSTITIS, DIABETES, HÆMATURIA, BRIGHT'S DISEASE, ALBUMINURIA, AND VESICAL IRRITATIONS GENERALLY.

We have much valuable literature upon GENERAL ANTISEPTIC TREATMENT, LITHEMIA, DIABETES, CYSTITIS, ETC., to forward to physicians upon request.

LAMBERT PHARMACAL CO., St. Louis, Mo.

Listerine is kept in Stock by the leading dealers in Drugs and Medicines throughout the world.

☞ Please mention the THERAPEUTIC GAZETTE.

Pepsin Cordial....

One teaspoonful will completely digest 2,000 grains of coagulated and disintegrated egg albumen.

Pepsin Cordial in Infantile Diarrhœa.

"I find Pepsin Cordial a most satisfactory remedy in Infantile Diarrhœa, and all Summer Complaints due to faulty digestion and an acid condition or ferment in the alimentary canal. In diarrhœa with green acid discharges, in cholera infantum, in nausea and vomiting, its action is cumulative and decisive."

CHAS. KELLY GARDNER, M.D.
In *Medical Age.*

An artificial gastric juice containing all the elements which are essential to gastric digestion. In point of activity it surpasses the elixirs, essences, and wines of pepsin commonly met with in the market, while its FLAVOR AND GENERAL PALATABILITY will commend it to the most fastidious palate.

In addition to its proteolytic power, it possesses the property of curdling milk, and is therefore useful for the preparation of junket, or curds and whey.

PARKE, DAVIS & CO., MANUFACTURING CHEMISTS, DETROIT, MICH., U.S.A.

☞ Please mention the THERAPEUTIC GAZETTE.

LACTOPHENIN

(BOEHRINGER, B. & S.)

ANTIPYRETIC, ANTINEURALGIC, ANALGESIC.

A SPECIFIC REMEDY AGAINST TYPHOID FEVER.

LACTOPHENIN is a new antipyretic, acting like PHENACETIN, but having over the latter THE ADVANTAGE OF A PRONOUNCED QUIETING EFFECT. Prof. von Jaksch, of Prague, has obtained the MOST SURPRISING RESULTS with LACTOPHENIN in typhoid fever, and has published the same in the *Centralblatt für innere Medicin*, No. 11, March 17, 1894.

LACTOPHENIN has been recommended most earnestly by Dr. A. Jaquet of the City Hospital in Basel, on account of its antipyretic and quieting action. Dr. Jaquet calls Lactophenin THE MOST REMARKABLE OF ALL NEW ANTIPYRETICS.

LACTOPHENIN has also been indorsed by Prof. Schmiedeberg, of Strassburg, Dr. Landowski, at the Hotel Dieu, Paris, and numerous other authorities, all of whom have been highly gratified by the results obtained.

The dose is 8 grains, five to six times daily, according to age.

AGENTS: **PARKE, DAVIS & CO.,**

DETROIT, NEW YORK, AND KANSAS CITY, U.S.A.,
LONDON, ENG., AND WALKERVILLE, ONT.

☞ Please mention the THERAPEUTIC GAZETTE.

Western Pennsylvania Medical College,

Medical Department of Western University of Pennsylvania,

PITTSBURG, PA.

SESSIONS OF 1894-95.

Regular session began on the third Tuesday of September, 1894.
Spring session begins on the second Tuesday of April, 1895, lasts ten weeks.
Three years' graded course. Four years required, from April, 1895.
Excellent Hospital and Dispensary advantages. Thoroughly equipped Laboratories.
Methods practical. Clinical instruction, daily and chiefly.
Opportunities unsurpassed.
For particulars, see announcement. Address

PROF. T. M. T. McKENNAN, Sec'y Faculty,
810 Penn Avenue, Pittsburg, Pa.

Business Correspondence should be addressed to

PROF. W. J. ASDALE,
2107 Penn Avenue, Pittsburg, Pa.

☞ Please mention the THERAPEUTIC GAZETTE.

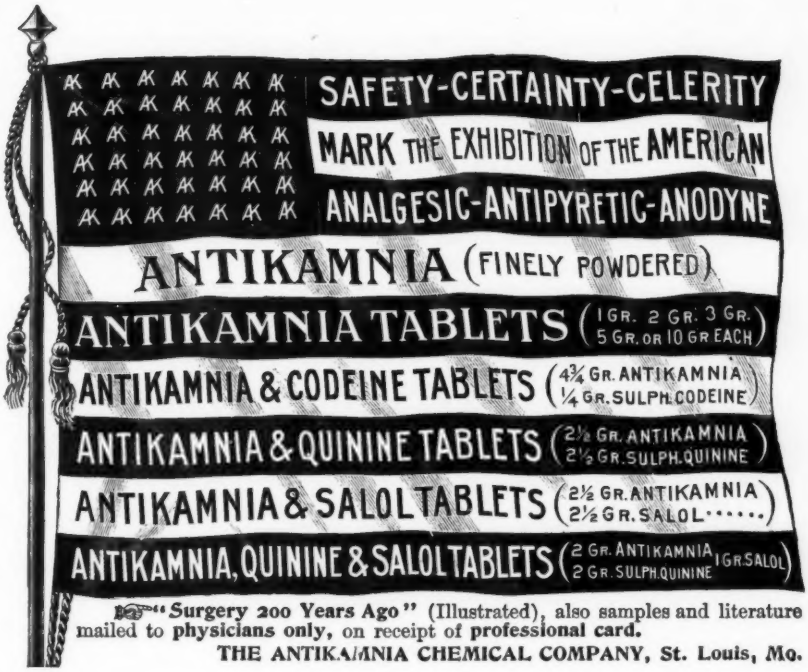
The Baltimore Medical College.

PRELIMINARY FALL COURSE begins September 1.
REGULAR WINTER COURSE begins October 1.
EXCELLENT TEACHING FACILITIES, Magnificent New College Building, Superb Lecture Halls, Large and Completely Equipped Laboratories, Capacious Hospital and Dispensary, Lying-in Department for Teaching Clinical Obstetrics, Large Clinics.
Send for catalogue, and address

DAVID STREETT, M.D., Dean,
423 N. Exeter St., Baltimore, Md.

☞ Please mention the THERAPEUTIC GAZETTE.

SEE ADVERTISING PAGES 4 AND 5


SAFETY-CERTAINTY-CELERITY
MARK THE EXHIBITION OF THE AMERICAN
ANALGESIC-ANTIPYRETIC-ANODYNE
ANTIKAMNIA (FINELY POWDERED)
ANTIKAMNIA TABLETS (1 GR. 2 GR. 3 GR. 5 GR. OR 10 GR EACH)
ANTIKAMNIA & CODEINE TABLETS (4¾ GR. ANTIKAMNIA ¼ GR. SULPH. CODEINE)
ANTIKAMNIA & QUININE TABLETS (2½ GR. ANTIKAMNIA 2½ GR. SULPH. QUININE)
ANTIKAMNIA & SALOL TABLETS (2½ GR. ANTIKAMNIA 2½ GR. SALOL.....)
ANTIKAMNIA, QUININE & SALOL TABLETS (2 GR. ANTIKAMNIA 2 GR. SULPH. QUININE 1 GR. SALOL)

☞ "Surgery 200 Years Ago" (Illustrated), also samples and literature mailed to **physicians only**, on receipt of **professional card.**

THE ANTIKAMNIA CHEMICAL COMPANY, St. Louis, Mo.

☞ Please mention the THERAPEUTIC GAZETTE

IN

Rheumatism and Neuralgia

TONGALINE

LIQ. TONG. SAL.

A THOROUGH ELIMINATIVE.

FORMULA, SAMPLES AND LITERATURE FURNISHED ON APPLICATION, EXPRESS PREPAID.

. . . ALSO FOR . . .

LA GRIPPE,
GOUT AND
SCIATICA.

TONGALINE—Liquid and Tablets.

Tongaline Tablets, 6 gr.
Tongaline and Lithia Tablets,
Tongaline, 5 Gr., Lith. Salicylate, 1 gr.
Tongaline and Quinine Tablets,
Tongaline, 3½ gr., Quinia Sulph. 2½ gr

All Salicylic Acid being from PURE Oil of Wintergreen.

For all Disorders of the

UTERUS,

Its **Appendages**
and other **Pelvic Organs,**

PONCA COMPOUND

UTERINE ALTERATIVE

IS A MOST RELIABLE AGENT.

Indicated in Metritis, Endo-Metritis, Subinvolution, Menorrhagia, Metrorrhagia, Leucorrhoea, Dysmenorrhoea, Ovarian Neuralgia, Painful Pregnancy, After-Pains.

FORMULA, SAMPLES AND LITERATURE MAILED ON APPLICATION.

MELLIER DRUG COMPANY, ST. LOUIS.

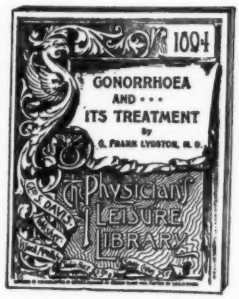
☞ Please mention the THERAPEUTIC GAZETTE.

READ THIS PAGE CAREFULLY.

In Seeking What He Wishes, Why Should the Physician Buy What He Does Not Need?

A prominent Western physician acknowledges with the following comments receipt of a large assortment of books chosen from

THE PHYSICIAN'S



LEISURE LIBRARY.

"We medical men find it highly inconvenient to wade through a large work or system of practice, whatever its scope. A system, of whatever kind, is expensive, and furthermore, a lapse of five years renders it in some measure obsolete. The Leisure Library Series, in addition to overcoming this serious objection to large works, has also in its favor this important point—we are enabled to get with little expense what we wish, without buying what we do not need, as is inevitable with the various systems of medicine, surgery, and practice generally. The Leisure Library Series, in my opinion, is the popular form of medical treatise bound to prevail in the future."

THE LEISURE LIBRARY provides the physician with short, practical treatises upon prevalent diseases, prepared by authors who are specialists and authorities. Nowhere can there be secured a better return (in the way of medical literature) for the moderate prices, as follows:

25c. per copy in embossed paper covers;
50c. per copy, bound in cloth.

Special offer of any twelve books in paper for $2.50, and in cloth for $5.00, **HAS BEEN DISCONTINUED.** Prices will be as above.

GEO. S. DAVIS, Medical Publisher,

P. O. Box 470. DETROIT, MICH., U. S. A.

READ THIS PAGE CAREFULLY.

READ THIS PAGE CAREFULLY.

CUT THIS PAGE OUT.

ORDER BLANK.

GEO. S. DAVIS, Medical Publisher,
Detroit, Michigan, U. S. A.

Dear Sir:

I enclose herewith $....., for which send me, postage prepaid, the volumes of the Leisure Library as per checks on list below.

Name.....

N.B.—Works in two volumes, 25 cents or 50 cents each volume, according to binding.

No.....*Street*.....

City.....

County..... *State*.....

INDICATE BY CHECK (✓) THE BOOKS DESIRED.

....Inhalers, Inhalations, and Inhalants. By Beverly Robinson, M.D.

....The Use of Electricity in the Removal of Superfluous Hair and the Treatment of Various Facial Blemishes. By Geo. Henry Fox, M.D.

....New Medications. 2 vols. By Dujardin-Beaumetz, M.D. [Translated by E. P. Hurd, M.D.]

....The Modern Treatment of Ear Diseases. By Samuel Sexton, M.D.

....The Modern Treatment of Eczema. By Henry G. Piffard, M.D.

....Antiseptic Midwifery. By Henry J. Garrigues, M.D.

....On the Determination of the Necessity of Wearing Glasses. By D. B. St. John Roosa, M.D.

....The Physiological, Pathological, and Therapeutic Effects of Compressed Air. By Andrew H. Smith, M.D.

....Granular Lids and Contagious Ophthalmia. (*Cloth only.*) By W. F. Mittendorf, M.D.

....Pregnancy, Parturition, and the Puerperal State, and their Complications. By Paul F. Mundé, M.D.

....The Diagnosis and Treatment of Hæmorrhoids. By Chas. B. Kelsey, M.D.

....Diseases of the Heart. 2 vols. By Dujardin-Beaumetz, M.D. [Translated by E. P. Hurd, M.D.]

....Intestinal Diseases of Children. 2 vols. By A. Jacobi, M.D.

....The Modern Treatment of Headaches. By Allan McLane Hamilton, M.D.

....Diseases of the Male Urethra. (*Cloth only.*) By Fessenden N. Otis, M.D.

....The Modern Treatment of Pleurisy and Pneumonia. By G. M. Garland, M.D.

....The Disorders of Menstruation. (*Out of stock. New edition in preparation.*) By Edward W. Jenks, M.D.

....The Infectious Diseases. 2 vols. By Karl Liebermeister. [Translated by E. P. Hurd, M.D.]

... The Modern Treatment of Diarrhœa and Dysentery. By A. B. Palmer, M.D.

....Abdominal Surgery. By Hal. C. Wyman, M.D.

....Diseases of the Liver. By Dujardin-Beaumetz, M.D.

....Hysteria and Epilepsy. By J. Leonard Corning, M.D.

....Diseases of the Kidney. By Dujardin-Beaumetz, M.D.

....The Theory and Practice of the Ophthalmoscope. By J. Herbert Claiborne, Jr., M.D

....Modern Treatment of Bright's Disease. By Alfred L. Loomis, M.D.

....Clinical Lectures on Certain Diseases of the Nervous System. By Prof. J. M. Charcot, M.D.

....The Radical Cure of Hernia. By Henry O. Marcy, A.M., M.D., LL.D.

....Spinal Irritation. By William A. Hammond, M.D.

....Dyspepsia. By Frank Woodbury, M.D.

....The Treatment of the Morphia Disease By Erlenmeyer.

....The Etiology, Diagnosis, and Therapy of Tuberculosis. By Prof. H. von Ziemssen, M.D. [Translated by D. J. Doherty, M.D.]

....Nervous Syphilis. By H. C. Wood, M.D.

....Education and Culture as Correlated to the Health and Diseases of Women By A. J. C. Skene, M.D.

....Diabetes. By A. H. Smith, M.D.

....Some Major and Minor Fallacies Concerning Syphilis. By E. L. Keyes, M.D.

....Practical Points in the Management of Diseases of Children. (*Cloth only.*) By I. N. Love, M.D.

....Rheumatism and Gout. By F. LeRoy Satterlee, M.D.

....Neuralgia. By E. P. Hurd, M.D.

....Auscultation and Percussion. By Frederick C. Shattuck, M.D.

....A Treatise on Fractures. By Armand Desprès, M.D.

....Hypodermic Medication. By Drs. Bourneville and Bricon.

....Electricity: Its Application in Medicine. 2 vols. By Wellington Adams, M.D.

....Taking Cold. By F. H. Bosworth, M.D.

....Practical Notes on Urinary Analysis. By William B. Canfield, M.D.

....Practical Intestinal Surgery. 2 vols. By F. B. Robinson, M.D.

....Lectures on Tumors. By John B. Hamilton, M.D., LL.D.

....Pulmonary Consumption, a Nervous Disease. By Thomas J. Mays, M.D.

....Artificial Anæsthesia and Anæsthetics By DeForest Willard, M.D., and Lewis H. Adler, Jr., M.D.

....Lessons in the Diagnosis and Treatment of Eye Diseases. By Casey A. Wood, M.D.

....The Modern Treatment of Hip Disease By Charles F. Stillman, M.D.

....Diseases of the Bladder and Prostate. By Hal. C. Wyman, M.D.

....Cancer. By Daniel Lewis, M.D.

....Insomnia and Hypnotics. By Germain Sée. [Translated by E. P. Hurd, M.D.]

....The Uses of Water in Modern Medicine. 2 vols. By Simon Baruch, M.D.

....Cerebral Meningitis. By Martin W. Barr, M.D.

....Contributions of Physicians to English and American Literature. By Robert C. Kenner, M.D.

....Gonorrhœa and its Treatment. (*New edition in press.*) By G. Frank Lydston, M.D.

....Acne and Alopecia. By L. Duncan Bulkley, M.D.

....Fissure of the Anus and Fistula in Ano By Lewis H. Adler, Jr., M.D.

....The Surgical Anatomy and Surgery of the Ear. By Albert H. Tuttle, M.D.

....Recent Developments in Massage. By Douglas Graham, M.D.

....Sexual Weakness and Impotence. By Edward Martin, M.D.

....Appendicitis and Perityphlitis. By Charles Talamon, M.D.

....Cholera. 2 vols. By G. A. Stockwell, M.D., F.Z.S.

....Electro-Therapeutics of Neurasthenia By W. F. Robinson, M.D.

....Treatment of Sterility in the Woman. By Dr. De Sinety.

....Bacterial Poisons. By N. Gamaleïa, M.D.

....The Modern Climatic Treatment of Invalids with Pulmonary Consumption in Southern California. By P. C. Remondino, M.D.

....Antiseptic Therapeutics. 2 vols. By E. Trouessart, M.D.

....Treatment of Typhoid Fever. By D. D. Stewart, M.D.

....Whooping Cough. 2 vols. By H. Richardière, M.D. [Translated by Joseph Helfman.]

....Landmarks in Gynæcology. 2 vols. By Byron Robinson, B.S., M.D.

....Where to Send Patients Abroad for Mineral and other Water Cures and Climatic Treatment. By Dr. Thomas Linn.

....Treatise on Diphtheria. By H. Bourges, M.D. [Translated by E. P. Hurd, M.D.]

....Pernicious Fevers. By João Vincente Homem, M.D. [Translated by Surgeon Geo. P. Bradley, U. S. N.

CUT THIS PAGE OUT.

CUT THIS PAGE OUT.

Calculi Dissolved

BY THE

Buffalo Lithia Water

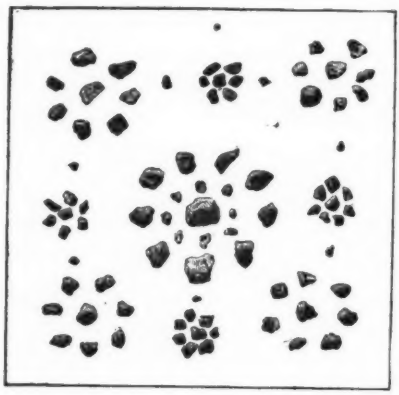


Illustration of the Calculi referred to by Dr. Claiborne. The engraving was made from a photograph and represents the exact shape of the Calculi; they are four times size of above.

Dr. John Herbert Claiborne, of Petersburg, Va., *ex-President and Honorary Fellow Medical Society of Virginia, in a letter, dated September 3, 1892, to Dr. E. C. Laird, Resident Physician at the Buffalo Lithia Springs,* says:—"I send by this mail a box of Calculi, passed at various times within the last year by Hon. T. J. Jarratt, our former Mayor, whilst drinking the Buffalo Lithia Water. They give him but little pain now when passing. I have never critically examined the broken Calculi, passed in such quantities from Mr. Jarratt's bladder, but am under the impression that the most of them are magnesian phosphates. There were specimens, however, which presented the appearance of oxylates, and some, I remember, impressed me specially as being uric acid. I do not pretend to account for the mode of their solution by the Buffalo Lithia Water. There is nothing in its analysis which would warrant such results; but the results are there, and seeing is believing. I can only suppose that **in Nature's alembic there has been some subtle solvent evolved, too subtle to be caught by our coarse re-agents, which make this wonderful disintegration.** 'There are many things in heaven and earth not dreamt of in our philosophy,' and his is a short creed who only believes what he can prove or explain."

Water in cases of one dozen half-gallon bottles $5.00 f. o. b. here. Sold by all first-class druggists.

THOS. F. GOODE, Proprietor

Buffalo Lithia Springs, Va.

☞ Please mention the THERAPEUTIC GAZETTE.

LACTOPHENIN

(BOEHRINGER, B. & S.)

ANTIPYRETIC, ANTINEURALGIC, ANALGESIC.

A SPECIFIC REMEDY AGAINST TYPHOID FEVER.

LACTOPHENIN is a new antipyretic, acting like PHENACETIN, but having over the latter THE ADVANTAGE OF A PRONOUNCED QUIETING EFFECT. Prof. von Jaksch, of Prague, has obtained the MOST SURPRISING RESULTS with LACTOPHENIN in typhoid fever, and has published the same in the *Centralblatt für innere Medicin*, No. 11, March 17, 1894.

LACTOPHENIN has been recommended most earnestly by Dr. A. Jaquet of the City Hospital in Basel, on account of its antipyretic and quieting action. Dr. Jaquet calls Lactophenin THE MOST REMARKABLE OF ALL NEW ANTIPYRETICS.

LACTOPHENIN has also been indorsed by Prof. Schmiedeberg, of Strassburg, Dr. Landowski, at the Hotel Dieu, Paris, and numerous other authorities, all of whom have been highly gratified by the results obtained.

The dose is 8 grains, five to six times daily, according to age.

AGENTS: **PARKE, DAVIS & CO.,**

DETROIT, NEW YORK, AND KANSAS CITY, U.S.A.,

LONDON, ENG., AND WALKERVILLE, ONT.

☞ Please mention the THERAPEUTIC GAZETTE.

CACTINA PILLETS

INDICATED IN ABNORMAL HEART ACTION.

Given with Antipyretics TO PREVENT Cardiac Depression.

☞Each Pillet represents one one-hundredth of a grain of Cactina—the active proximate principle of Cactus Mexicana.

DOSE.—One Pillet every hour, or less often, as indicated.

SENG

ACTIVE CONSTITUENTS OF
Panax Schinseng (Manchuria)

—FOR—

INDIGESTION AND MALNUTRITION.

Specially indicated in Phthisis and other Wasting Diseases.

DOSE.—One or more teaspoonfuls three times a day. For Babies, one to ten drops during each feeding.

SULTAN DRUG CO., St. Louis and London.

PEACOCK'S BROMIDES

(CHEMICALLY PURE.)

Each fluid drachm represents 15 grains of Combined Bromides.

Uses: Uterine Congestion, Headache, Epilepsy, and all Congestive, Convulsive and Reflex Neuroses.

DOSE.—One to two FLUID drachms, in WATER, three or more times a day.

AVOID THE USE OF COMMERCIAL BROMIDE SUBSTITUTES.

CHIONIA

FROM CHIONANTHUS.

USES:

ALL DISEASES CAUSED BY HEPATIC TORPOR.

Does not purge, per se, but under its use the Liver and Bowels gradually resume their normal functions.

DOSE.—One Fluid Drachm three times a day.

PEACOCK CHEMICAL CO., - ST. LOUIS.

THE JEFFERSON MEDICAL COLLEGE

OF PHILADELPHIA.

The Annual Session of the Jefferson Medical College begins October 2d, and continues over seven months. Preliminary Lectures will be held from 25th of September.

PROFESSORS.

J. M. DA COSTA, M.D., LL.D., Emeritus Professor of Practice of Medicine and Clinical Medicine.
ROBERTS BARTHOLOW, M.D., LL.D., Emeritus Professor of Materia Medica, General Therapeutics, and Hygiene.
HENRY C. CHAPMAN, M.D., Institutes of Medicine and Medical Jurisprudence.
JOHN H. BRINTON, M.D., Practice of Surgery and Clinical Surgery.
THEOPHILUS PARVIN, M.D., LL.D., Obstetrics and Diseases of Women and Children.
JAMES W. HOLLAND, M.D., Medical Chemistry and Toxicology.
WILLIAM S. FORBES, M.D., General, Descriptive, and Surgical Anatomy.
WILLIAM W. KEEN, LL.D., M.D., Principles of Surgery and Clinical Surgery.
MORRIS LONGSTRETH, M.D., General Pathology and Pathological Anatomy.
H. A. HARE, M.D., Therapeutics, Materia Medica, and Hygiene.
JAMES C. WILSON, M.D., Practice of Medicine and Clinical Medicine.
E. E. MONTGOMERY, M.D., Clinical Gynecology.
WM. THOMSON, M.D., Honorary Professor of Ophthalmology.
J. SOLIS COHEN, M.D., Honorary Professor of Laryngology.
HENRY W. STELWAGON, M.D., Clinical Professor of Dermatology.
H. AUGUSTUS WILSON, M.D., Clinical Professor of Orthopedic Surgery.
E. E. GRAHAM, M.D., Clinical Professor of Diseases of Children.
F. X. DERCUM, M.D., Clinical Professor of Neurology.
GEO. DE SCHWEINITZ, M.D., Clinical Professor of Ophthalmology.
ORVILLE HORWITZ, M.D., Clinical Professor of Genito-Urinary Diseases.
W. JOSEPH HEARN, M.D., Clinical Professor of Surgery.
E. P. DAVIS, M.D., Clinical Professor of Obstetrics.
S. MACCUEN SMITH, M.D., Clinical Professor of Otology.
W. M. LATE COPLIN, M.D., Adjunct Professor of Hygiene.

COURSE OF INSTRUCTION AND FACILITIES.

Three years of graded instruction are required of candidates presenting themselves for the degree of M.D., but the voluntary fourth year course which is now offered is strongly recommended. The instruction consists in didactic lectures, amply supplemented by clinical teaching at the bedside and in the laboratories and dispensaries.

In addition to the members of the Faculty named above there is a large corps of experienced instructors who assist the professors in practical work in the laboratories or in bedside work at the hospitals and dispensaries. Every candidate for the degree is personally taught, by dividing the class into small sections, in Clinical Medicine and Physical Diagnosis, Obstetrics and Gynecology, Major and Minor Surgery and Bandaging, Orthopedic Surgery, Diseases of Children, Ophthalmology, Neurology, Otology, Dermatology, Laryngology, and Genito-Urinary Diseases. Ample clinical material is afforded by the Jefferson College Hospital, in which no less than 300 patients are treated daily, and by the Philadelphia and other Hospitals.

Laboratory instruction is given in Medical Chemistry, Pharmacy, Physiology, Clinical Microscopy, Anatomy, and Histology, and in Operative Obstetrics, Surgery, Pathology, and Hygiene.

Daily instruction in the practical branches is given in the Hospital of the College, is a special feature of the course in the second and third years, and is without extra charge.

The Annual Announcement, giving full particulars, will be sent on application to

J. W. HOLLAND, M.D., Dean.

☞ Please mention the THERAPEUTIC GAZETTE.

The Busy Physician
Hasn't time
For large, "wordy"
Treatises upon prevalent
Diseases.

The LEISURE LIBRARY
Provides the physician
With short
Practical treatises,—stripped
Of all details
Not required by
The general practitioner.

SEE ADVERTISING PAGES 2 AND 3.

☞ Please mention the THERAPEUTIC GAZETTE.

DIOVIBURNIA

UTERINE TONIC, ANTISPASMODIC, AND ANODYNE.

A reliable and trustworthy remedy for the relief of Dysmenorrhœa, Amenorrhœa, Menorrhagia, Leucorrhœa, Subinvolution, THREATENED ABORTION, Vomiting in Pregnancy, Chlorosis, and After-Pains, directing its action to the entire uterine system as a general tonic and antispasmodic.

DIOVIBURNIA is prepared for prescribing exclusively, and the formula as given will commend itself to every intelligent physician.

FORMULA.—Every ounce contains ¾ drachm each of the fluid extracts Viburnum, Prunifolium, Viburnum Opulus, Dioscorea, Villosa, Aletris Farinosa, Helonias Diocia, Mitchella Repens, Caulophyllum Thalistroids, Scutellaria Lateriflora.

DOSE.—For adults a dessertspoonful to a tablespoonful three times a day, after meals; ALWAYS IN HOT WATER.

John B. Johnson, M.D., Professor of the Principles and Practice of Medicine, St. Louis Medical College.

ST. LOUIS, June 20, 1888.

I very cheerfully give my testimony to the virtues of a combination of vegetable remedies prepared by a well-known and able pharmacist of this city, and known as **Dioviburnia,** the component parts of which are well known to any and all physicians, and have no relation to proprietary or quack remedies. I have employed this medicine in cases of dysmenorrhœa, suppression of catamenia, and in excessive leucorrhœa, and have been much pleased with its use. I do not think its claims as set forth in the circular accompanying it to be at all excessive.

Respectfully,

Chas. B. Johnson

L. Ch. Boisliniere, M.D., Prof. Obstetrics, St. Louis Medical College.

St. Louis, June 18, 1888.

I have given **Dioviburnia** a fair trial and found it useful as a uterine tonic and antispasmodic, relieving the pains of dysmenorrhœa and regulator of the uterine functions. I feel authorized to give this recommendation, as it is neither a patented nor a secret medicine.

L. Ch. Boisliniere

H. Tuholske, M.D., Professor Clinical Surgery and Surgical Pathology, Missouri Medical College; also Post-Graduate School of St. Louis.

I have used **Dioviburnia** quite a number of times—sufficiently frequently to satisfy myself of its merits. It is of unquestionable benefit in painful dysmenorrhœa; it possesses antispasmodic properties which seem especially to be exerted on the uterus.

Dr. H. Tuholske

To any physician, unacquainted with the medicinal effects of SENNINE, we will mail, FREE, sample, pamphlets containing full information, and commendations of some of the most prominent physicians in the profession. Samples of NEUROSINE and DIOVIBURNIA will be furnished FREE, you paying express charges.

DIOS CHEMICAL CO.,

☞ Please mention the THERAPEUTIC GAZETTE. **ST. LOUIS, MO., U. S. A.**

"MEDICINE"

A Monthly Journal of Medicine and Surgery.

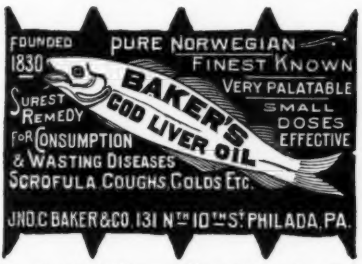
$2.00 PER YEAR.

Subscribe Now.

SEE ADVERTISING PAGE 18.

JOHN C. BAKER & CO.,

PHILADELPHIA.


FOUNDED 1830
PURE NORWEGIAN
FINEST KNOWN
VERY PALATABLE
SMALL DOSES EFFECTIVE
SUREST REMEDY FOR CONSUMPTION & WASTING DISEASES SCROFULA, COUGHS, COLDS ETC.
BAKER'S COD LIVER OIL
JNO. C. BAKER & CO. 131 N.TH 10TH ST. PHILADA. PA.

Baker's Cod Liver Oil with Extract of Malt.

Baker's Emulsion with Hypophosphites.

SOFT, ELASTIC CAPSULES { C. L. Oil and Creosote. / C. L. Oil and Iodide of Iron. / Plain Cod Liver Oil.

SIZES, 10, 20, AND 40 MINIMS.

Solution Ferrous Malate.

Solution Salicylate of Iron.

Barlett's Pile Suppositories.

☞ Please mention the THERAPEUTIC GAZETTE.

CHAS. J. TAGLIABUE'S

STANDARD MAGNIFYING LENS FRONT CLINICAL THERMOMETERS

OF EXTREME PRECISION.

Knowing the trouble physicians have had in procuring accurate Clinical Thermometers, I wish to call your attention to my **Standard Instruments.** These goods are made of the most improved glass, and only skilled and careful workmen are employed by me on this class of work. All instruments are fully seasoned before being graduated, are carefully retested before shipment, and are guaranteed not to increase their readings with age.

Every instrument, whether bearing my name, the word **Standard** and my trade-mark (thus) or the name of my customers for whom I make them, will have engraved on each. Each instrument is furnished with a certificate of correction, and all are guaranteed within $\frac{1}{10}$ of one degree. For sale by Drug and Surgical Instrument Houses. If your dealer cannot supply you, please notify me.

Write for 1894 Catalogue. **CHAS. J. TAGLIABUE, 49 to 53 Fulton St., N. Y.**

☞ Please mention the THERAPEUTIC GAZETTE.

Nuclein Solution . . .

FROM YEAST.

Prepared According to the Formula of

VICTOR C. VAUGHAN, M.D., Ph.D.

Professor of Hygiene in the University of Michigan.

NUCLEIN is a non-poisonous germicide, found in various vegetable and animal cells, also in blood-serum, the bactericidal properties of which are due to this constituent. It increases the number of white blood-corpuscles and stimulates the activity of those organs whose function it is to protect the body against infectious diseases. It has been used with benefit in indolent ulcers, membranous tonsillitis, streptococcus diphtheria, and in *initial* cases of tuberculosis.

Dose—20 to 60 minims hypodermatically.

WRITE FOR REPRINTS OF PAPERS BY

Prof. VICTOR C. VAUGHAN, M.D., Ph.D., and

CHARLES T. McCLINTOCK, Ph.D.

PARKE, DAVIS & CO.,

DETROIT, NEW YORK, KANSAS CITY, U.S.A.

LONDON, ENG., AND WALKERVILLE, ONT.

☞ Please mention the THERAPEUTIC GAZETTE.

CAPITAIN CORNER. Patented August 16, 1892. Corner, Solid Feet, and Socket in One Piece. The Socket allows case to open flat and takes all strain from the hinges. The solid feet do not wear through, and being a part of the corner do not come off.

SHAKOPEE, MINN., Jan. 29, 1894.

"The 'Western Leader' is a far better case than I expected for the money. A brother physician of this place received a case from another house by the same express. He paid $10.00 for his, and when he saw mine he said that from a comparative stand-point his case was worth $5.50 and mine was worth $10.00." A. A. SABIN, M.D.

100 Per Cent. Better than the old Leader No. 600, No. 900, or any other so-called Leader Medicine case. Fitted with the **Capitain Patent Corners** and the **Latest Improved Western Comstock Patent One-piece Silver-plated Spring Bottle Holders.** These all-metal Bottle Holders are removable for cleaning, and the case can be kept absolutely sweet and pure very easily. Covered with a **black, morocco-grained, oil-filled, solid, water-proof leather (cow-hide), Hand-stitched Edges,** with sides, bottom, and top cut from one piece, making it dust- and water-proof. This one-piece cover extends over extra heavy hinges, thus protecting them from wear and forming double hinges for the case. Has heavy, hand-stitched handle, with metal piece through it, looped areund the rings. Strong nickel lock, with key. Corks kept in by metal flanges. Contains 24 1-oz., 24 3-dr., and 4 3-oz. extra heavy, wide mouthed, annealed bottles, with first quality of corks, and sundry space 5¼ x 4 x 1⅝. Size of case, 10¾ x 6 x 4¾. Weight, 20 per cent. less than other cases mentioned above. Will send with privilege of examination upon receipt of $1.50 to insure expressage. Balance, C. O. D.

WESTERN LEATHER MFG. CO., Sole Manufacturers, 125 to 137 Rees St., Chicago.

☞ Please mention the THERAPEUTIC GAZETTE.

1620

AGAINST

390

REMINGTON . . .

Standard Typewriters

Are now in service in the Departments of the United States Government in Washington, D.C.

AGAINST

A Total of **390** of all other makes employed.

Superior Design, Construction, and Performance Does It.

Catalogues Sent.

WYCKOFF, SEAMANS & BENEDICT,

175 Monroe St., CHICAGO.

TRY THE NEW MODEL NO. 6

☞ Please mention the THERAPEUTIC GAZETTE.

Brooklyn Health Department.

April 2d, 1895.

Hon. Z. T. EMERY, M.D.,
Commissioner of Health.

SIR:—I have the honor to report that yesterday, April 1st, I procured from Schulze-Berge & Koechl two bottles of Behring's Antitoxine No. 2, containing 1,000 immunity units, sealed under the date of January 30th, operation No. 159, being a portion of the same lot as used in the case of Bertha Valentine. Of this serum one cubic centimeter was injected beneath the skin of a guinea pig weighing 420 grammes at 4.30 P.M. The animal suffered no inconvenience from this injection. At the time two and one-half cubic centimeters of the same serum was injected directly into the ear vein of a large rabbit. This animal suffered no inconvenience. I also obtained from Dr. Clayland, the Coroner's physician, about one ounce of fluid blood received in a sterilized bottle from the right auricle of the heart. One-half of this blood was given to the chemist of the department for chemical analysis. Direct microscopical examination and cultures from this blood showed it to be free from micro-organisms. Speculative theories may be advanced as to the cause of death in this case, the true cause not having yet been determined, but the above experiment, conforming as nearly as possible to the actual condition, demonstrates that the cause was not inherent to the Antitoxine.

Sincerely yours,

E. H. WILSON, M.D.,
Chief Bacteriologist.

Bacteriological Laboratory,

NEW YORK CITY BOARD OF HEALTH.

April 2d, 1895.

This is to certify that in view of the sudden death which recently occurred in Brooklyn after the adminstration of Behring's Diphtheria Antitoxine, and at the request of President Wilson, of the New York City Board of Health, in the absence of Dr. Biggs, I obtained from Messrs. Schulze-Berge & Koechl, the American agents for the remedy, two vials of the Antitoxine from the same lot, operation 159, as that which was employed by Dr. Kortright in the case alluded to. I have submitted both vials to thorough tests at the Bacteriological Laboratory of the Board of Health by injecting excessive doses into guinea pigs and rabbits without producing any deleterious effects whatever. Specimens from both vials were also submitted to bacteriological tests, and were found to be absolutely free from living germs of any kind.

These results, taken together with the fact that the New York City Board of Health has employed this same make of Antitoxine in a considerable number of cases with only the best of results, lead me to express the opinion that the unfortunate results which followed its administration in the case referred to cannot be attributed in any way to the Antitoxine which was employed.

W. H. PARK, M.D.,
Asst. Director Bacteriological Laboratory.

☞ Please mention the THERAPEUTIC GAZETTE.

"TWENTY YEARS' USE OF MALTINE. By HENRY E. MERENESS, A.M., M.D., Albany, New York. Twenty years ago (Feb. 1st, 1875), I began the practice of medicine in Albany. Soon after that time my attention was called to Maltine Plain and to Maltine with Cod Liver Oil. I have prescribed these and the other Maltine preparations ever since, with the happiest results. Particularly so in wasting diseases such as consumption and anæmia, and other conditions in which debility or feeble digestive powers seemed to call for remedies of this class. More recently I have given especial attention to Maltine with Coca Wine, and find it to be a most valuable addition to the Maltine list. In all these twenty years I have felt the greatest confidence and reliance in the use of the Maltine preparations, and have never been disappointed. The Maltine Company has kept fully abreast with the many brilliant achievements that have been attained in modern pharmacy."—*Chicago Medical Times*, April, 1895.

☞ Please mention the THERAPEUTIC GAZETTE.

SUBSCRIBE

· FOR ·

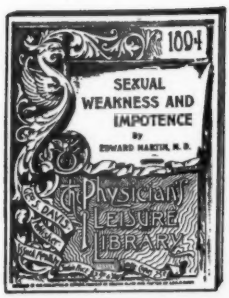
MEDICINE

SEE ADVERTISING PAGE 18.

☞ Please mention the THERAPEUTIC GAZETTE.

In seeking what he wishes,
why should the physician
buy what he does not need?

See
Advertising Pages
2 and 3.



☞ Please mention the THERAPEUTIC GAZETTE.

VACCINE VIRUS *IN SEALED GLASS TUBES.*

MOST EFFECTIVE AND PURE.

Prices: 5 vacc., 35c.; 10 vacc., 60c.; 20 vacc., $1.00.

In Money Order or Stamps.

NEW YORK BIOLOGICAL AND VACCINAL INSTITUTE,
Pasteur Institute Building, New York.

Dispensed to Physicians only.

☞ Please mention the THERAPEUTIC GAZETTE.

In Constipation with Excessive Dryness of Stools.—

℞ Cascara Cordial (P., D. & Co.), ℥ iv.
Fl. ext. lobelia (P., D. & Co.), ℥ ij.

M. Dose, two teaspoonfuls.

☞ Please mention the THERAPEUTIC GAZETTE.

Medico-Chirurgical College of Philadelphia.

Winter Session will begin October 1st, and continue until May. Preliminary Session begins September 7th.

The Curriculum is graded; a preliminary examination and three Annual Winter Sessions are required. Laboratory instruction in Chemistry, Histology, Pathology, Bacteriology, Hygiene, and Physiology, with Bedside instruction in Medicine, Surgery, and Gynæcology, are a part of the regular course. Special Clinical facilities.

Wm. H. Pancoast, Anatomy, Clinical Surgery; Jno. V. Shoemaker, Therapeutics; Jas. M. Anders, Practice; Ernest Laplace, Surgery and Pathology; W. Frank Haehnlen, Obstetrics; W. Easterly Ashton, Gynæcology; L. Webster Fox, Ophthalmology; Isaac Ott, Physiology; Seneca Egbert, Hygiene; Wm. E. Hughes, Clinical Medicine; Edwin J. Houston, Physics; A. E. Kennelly, Electro-Therapeutics. For Announcement or information, apply to

ERNEST LAPLACE, M.D., *Dean*, 1828 S. Rittenhouse Sq., Philadelphia, Pa.

LANOLINE LIEBREICH

UNSURPASSED AS A BASE

FOR THE

TOPICAL EXHIBITION OF MEDICAMENTS.

Manufactured only at the Lanolinfabrik, Benno Jaffe & Darmstaedter, Martinikenfelde, Germany.

SOLE LICENSEES,

SCHULZE-BERGE & KOECHL,

79 Murray Street, New York.

☞ Please mention the THERAPEUTIC GAZETTE.

DR. MASSEY'S

PRIVATE SANITARIUM.

Presenting the comforts of an elegant private residence, this institution is specially equipped for the use of electricity and allied remedial measures in the diseases of women and in diseases of the nervous system. For particulars address

G. BETTON MASSEY, M.D.,
212 S. Fifteenth St., Philadelphia.

☞ Please mention the THERAPEUTIC GAZETTE.

CREUSE'S TASTELESS IRON

These well-known preparations—viz., the *Tasteless Iodide of Iron*, Salt and Syrup, and the *Tasteless Tincture of Iron*—never blacken the teeth. Kept by most druggists in the United States.

☞ Please mention the THERAPEUTIC GAZETTE.

J. FEHR'S

"COMPOUND TALCUM BABY POWDER,"

The "Hygienic Dermal Powder" for Infants and Adults.

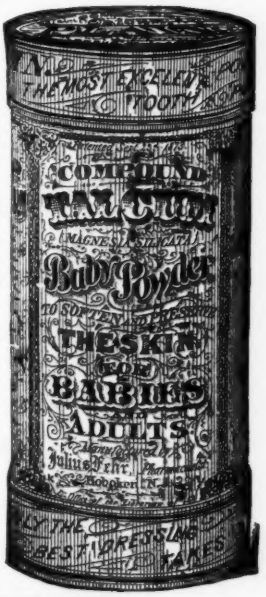
Originally investigated and its therapeutic properties discovered in the year 1868, by Dr. Fehr, and introduced to the Medical and the Pharmaceutical Professions in the year 1873.

COMPOSITION.—Silicate of Magnesia with Carbolic and Salicylic Acids.

PROPERTIES.—Antiseptic, Antizymotic, and Disinfectant.

Useful as a GENERAL SPRINKLING POWDER, with positive Hygienic, Prophylactic, and Therapeutic Properties.

GOOD IN ALL AFFECTIONS OF THE SKIN.



Sold by the Drug Trade generally.

Per box, plain, 25c.; perfumed, 50c.
Per dozen, plain, $1.75; perfumed, $3.50.

The Manufacturer,

Julius Fehr, M.D., Ancient Pharmacist, **Hoboken, N.J.**

Only advertised in Medical and Pharmaceutical prints.

☞ Please mention the THERAPEUTIC GAZETTE.

PHYTOLINE

A POWERFUL ANTI-FAT

ABSOLUTELY HARMLESS

Prepared from The active principle of the berries of PHYTOLACCA DECANDRA.

Prescribed in Ten-drop doses, half-hour before and one hour after the three daily meals.

Indicated in OBESITY, FATTY DEGENERATION OF THE HEART, FATTY TUMORS, RHEUMATISM & ALLIED COMPLAINTS.

ONLY ADVERTISED TO THE MEDICAL PROFFESSION

FOR LITERATURE ADDRESS

WALKER PHARMACAL CO. ST. LOUIS.

Pineoline

For SKIN DISEASES

A delightful and efficacious Ointment prepared from the ethereal extract of the Needle of the Pine (Pinus Pumilio) growing in the Black Forest of Germany.

Valuable in the Treatment of all forms of diseases OF THE SKIN,

ECZEMA - LICHENS - PRURITUS - SCABIES ACNE ETC.

PINEOLINE IS APPLIED TWO OR THREE TIMES DAILY ON LINEN OR IN ANY OTHER DESIRABLE WAY

Sample sent on application.

Please mention the THERAPEUTIC GAZETTE.

TRADE MARK.

THE OAKLAND CHEMICAL COMPY. H_2O_2

OAKLAND

HYDROGEN DIOXIDE,

U. S. P.

AN OFFICINAL PREPARATION OF H_2O_2.

A specific in all cases where a non-irritating antiseptic is indicated; in Diphtheria, Ulcerative processes, Nose and Throat affections, Burns, Leucorrhœa, &c., &c., &c.

THE OAKLAND CHEMICAL CO.,

89 & 91 South Fifth Avenue, New York.

Sample, and monograph containing full instructions for use, free on receipt of 15c. to prepay express charges.

Please mention the THERAPEUTIC GAZETTE.

Culture Media

(STERILIZED.)

For Pure Cultures of Bacteria.

Physicians often feel the need of a bacteriological study of their cases. A culture tube and microscopical examination will often in a few hours confirm a doubtful diagnosis, make clear an obscure case, decide for or against isolation and disinfection, etc.

A large majority of physicians, however, do not have the necessary apparatus for preparing culture media, or having it they may lack the time or necessary skill. It requires several days to prepare the ordinary culture tubes for the work.

To accommodate the profession we have decided to supply such culture media as they may need from our Bacteriological Department. The following sterilized culture media will be furnished in glass tubes containing from 5 to 8 cubic centimeters each.

GELATIN.

No. 1. Nutrient Gelatin.
No. 2. Glucose Gelatin.
No. 3. Litmus Gelatin.

AGAR.

No. 4. Nutrient Agar.
No. 5. Glycerin Agar.
No. 6. Glucose Agar.

Nos. 1 to 6 are put up in mailing-cases, each containing three tubes of any kind.

BLOOD SERUM.

No. 7. Blood Serum, according to Dr. Koch.
No. 8. Blood Serum, Löffler's mixture for diphtheria.

EMPTY TUBES.

No. 9. Empty Test Tubes, Sterilized, plugged with cotton, and rubber-capped.

Blood Serum, No. 7, will be supplied in mailing-cases of 3 tubes, like Nos. 1 to 6.

Löffler's Blood Serum mixture, No. 8, will be supplied in mailing-cases containing one tube of the blood serum and a second tube containing a sterilized swab.

The various kinds of gelatin and agar culture media, also bouillon, will also be supplied in bulk in ½-liter flasks, to enable physicians to refill the tubes.

In addition to the above, any special medium that may be required will be supplied on order, in quantities of not less than 100 tubes, in as short a time as possible after receipt of the order.

Tubes No. 9 will be found convenient for collecting samples of pus, blood, exudates, etc. Until the rubber caps are removed they are practically hermetically sealed, and will remain sterile indefinitely.

We shall aim to ship the culture media in as short a time as possible after receipt of the order. As all forms of culture media deteriorate with age, and as we intend to furnish them as freshly prepared as possible, with the more or less uncertain demand, we cannot always promise to make shipment on the day on which the order is received.

PARKE, DAVIS & CO.,

DETROIT, NEW YORK, KANSAS CITY, U. S. A.,

LONDON, ENG., AND WALKERVILLE, ONT.

MELLIN'S FOOD

For Infants and Invalids.

A Soluble Dry Extract of Barley Malt and Wheat, prepared after the formula of the eminent chemist, Baron Justus von Liebig, for the

MODIFICATION OF FRESH COW'S MILK.

MELLIN'S FOOD is entirely free from Starch; the Carbohydrates contained therein are Dextrins and Maltose.

"The sugar formed by the action of the Ptyalin of the Saliva and the Amylopsin of the Pancreas upon starch is MALTOSE. In the digestive tract MALTOSE is absorbed UNCHANGED." *Textbook of Human Physiology, Landois and Sterling.*

"MALTOSE constitutes the end product of the action of diastase, and amylolytic ferments generally, on starch and its congeners."
Physiology of the Carbohydrates, F. W. Pavy, M.D., LL.D., F.R.S.

MELLIN'S FOOD, prepared with FRESH COW'S MILK according to the directions, is a true LIEBIG'S FOOD, and the BEST SUBSTITUTE for Mother's Milk yet produced.

THE DOLIBER-GOODALE CO., BOSTON, MASS.

☞ Please mention the THERAPEUTIC GAZETTE.

PARTURITION.

ALETRIS CORDIAL (Rio) given in Teaspoonful doses every hour or two AFTER PARTURITION, is the best agent to prevent after-pains and hemorrhage. By its DIRECT tonic action on the uterus, it expels blood-clots, closes the uterine sinuses, causes the womb to contract, and prevents subinvolution. In severe cases it can be combined with ergot in the proportion of one ounce of fluid Ext. Ergot to three ounces Aletris Cordial. It is the experience of eminent practitioners, in all cases where ergot is indicated, that its action is rendered much more efficacious by combining it with ALETRIS CORDIAL in the proportions above stated.

A full size bottle of CELERINA will be sent FREE to any Physician who wishes to test it if he will pay the express charges.

RIO CHEMICAL CO.,
ST. LOUIS, MO.

☞ Please mention the THERAPEUTIC GAZETTE.